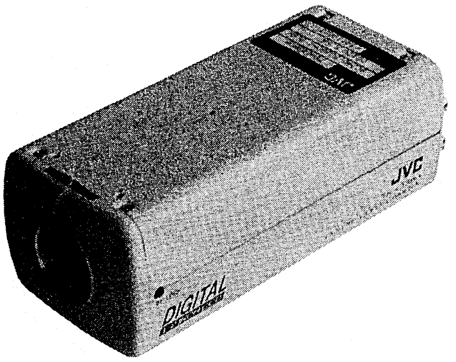
JVC

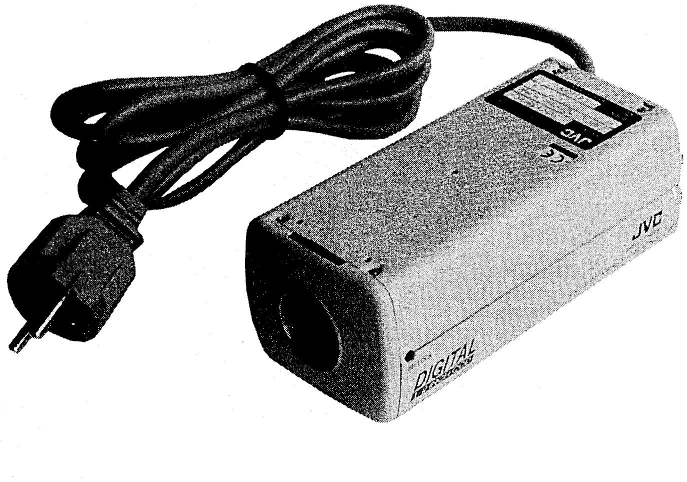
SERVICE MANUAL

COLOR VIDEO CAMERA

TK-C1380U/TK-C1380E/TK-C1381EG



TK-C1380U/TK-C1380E



TK-C1381EG

Note :
The electrical parts numbers listed on the manual are organized by new JVC standard parts system. The new parts numbers are different from previous numbers, even if the components are same.

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Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

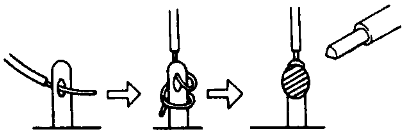


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

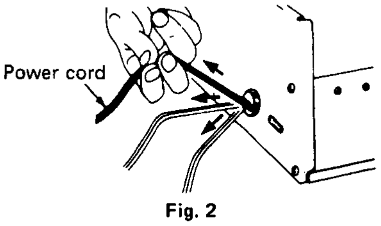


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

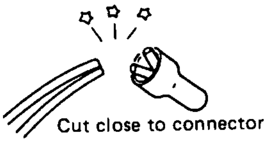


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

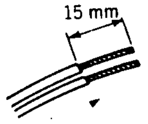


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

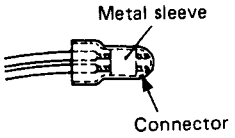


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

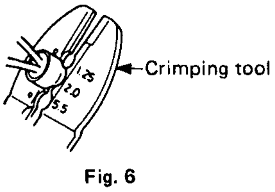


Fig. 6

(5) Check the four points noted in Fig. 7.

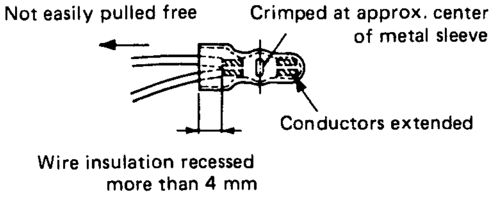

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

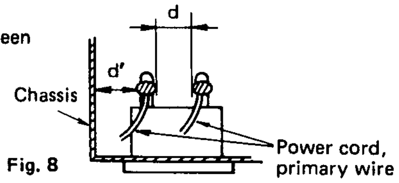


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

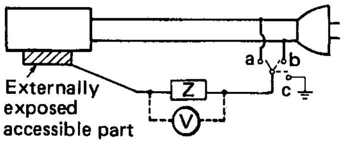


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

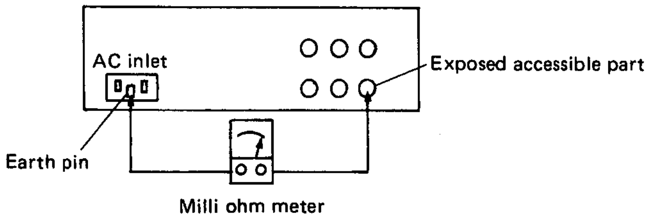


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R≧1 MΩ/500 V DC	AC 1 kV 1 minute	d, d'≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d'≧ 4 mm
110 to 130 V	USA & Canada	–	AC 900 V 1 minute	d, d'≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R≧10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

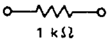
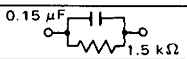
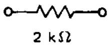
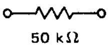
AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan		i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada		i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia		i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
			i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

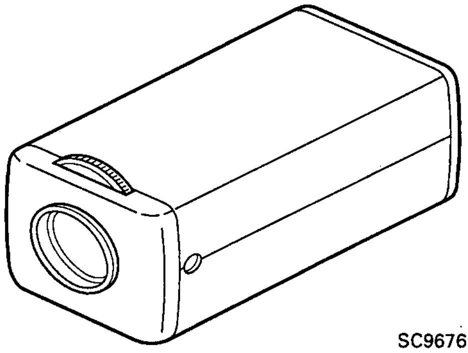
Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

JVC

COLOUR VIDEO CAMERA
FARB-VIDEOKAMERA
CAMERA VIDEO COULEUR

TK-C1380
TK-C1381

INSTRUCTIONS
BEDIENUNGSANLEITUNG
MANUEL D'INSTRUCTIONS



SC96769 : TK-C1380U
SC96771 : TK-C1380E
: TK-C1381EG

Thank you for purchasing the TK-C1380 / TK-C1381 colour video camera.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

Due to design modification, data given in this instruction book are subject to possible change without prior notice.

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Precautions 2
Controls, connectors and indicators 3
Set-up functions 5
Connection 13
Lens 14
How to use the ferrite core 17
Specifications 18

- Always make a prior test recording to help optimise the final recording.
- JVC does not assume any responsibility for failures to make recordings due to troubles with the video camera, VCR or tape cassette.

WARNING-THIS APPLIANCE MUST BE EARTHED
IMPORTANT

The wires in this mains lead are coloured in accordance with yhe following code :

GREEN-AND-YELLOW : EARTH
BLUE : NEUTRAL
BROWN : LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows. The wire which is coloured GREEN-AND-YELLOW must be connectted to the terminal in the plug which is marked with the letter E or by the safety errth symbol ⏚ or coloured GREEN or GREEN-AND-YELLOW.
The wire which is coloured BLUE must be connected to the terminal which is maked with the letter N or coloured BLACK . The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

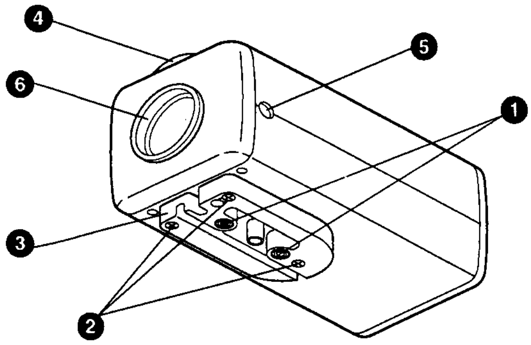
Features

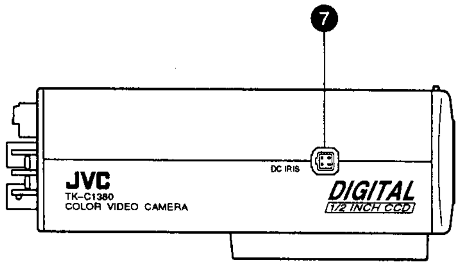
- High-quality picture provided by the 1/2-inch, 410, 000-pixel (380,000 effective pixel) : NTSC, 470,000-pixel (440,000 effective pixel) : PAL high-performance design CCD with 470 TV line : NTSC, 460 TV line : PAL horizontal resolution and 0.95 lx (25%, F1.2) minimum object illumination.
- Backlight compensation (BLC) detecting areas can be selected from 4 fixed patterns as well as from two user-selectable patterns.
- Highlight inverter (HLI) function makes the picture around the position of a highlight easier to see.
- Lens mount switching mechanism makes it possible to use either a C-mount lens or CS-mount lens.
- Menu set-up system eliminates the need of setting operations using switches and controls.

Precautions

- Avoid installing the unit in following locations.
  - Places exposed to rain or moisture
  - Places with an ambient temperature outside the range of −10 to 50°C (operation) or from 0 to 40°C (recommended).
  - Places subject to excessive dust or to oil or gas.
- When this unit is used with AGC ON, an image recorded in a dark place may look noisy due to the automatic boost in sensitivity. This is not a malfunction.
- When this unit is used with the AUTO white balance control, the recorded colours may differ slightly from the actual colours due to the operation of the automatic-tracking white balance control circuit. This is not a malfunction.
- When a bright object (such as a lamp) is shot, a white, comet-tail phenomenon may be observed above and below the bright object on the screen. This is a phenomenon (called smear) inherent in CCD image pickup devices and is not a malfunction.
- The electronic shutter speed of this unit has been set to 1/50 second at the factory. If you use this unit under fluorescent lamps in an area with the local power frequency of 60 Hz, switch the shutter speed to 1/120 sec. (The sensitivity will be degraded slightly at 1/120 sec.)
- Lens aperture will be open when the electronic shutter is operated on AUTO mode with an auto iris lens in use, To avoid this, set the shutter to any mode other than AUTO or use a manual (fixed) iris lens.
- When the electronic shutter is set to the AUTO mode while this unit is used under fluorescent lamp illumination, flickering may be observed in the picture. This is a phenomenon caused by the relationship between the light's power frequency and shutter speed, and is not a malfunction.
- When using a zoom lens, it is recommended to run the camera with your zoom lens attached and check the backfocus before camera installation. The same applies to lens attached and check the backfocus before camera installation. The same applies to lens level adjustment. (See the lens instruction manual for details.)
- Be sure to attach the provided ferrite core to the lens cable or power cable to be connected with this camera to minimize unnecessary radiation.
- Avoid istalling in places where there is radiation.This could damege CCD and other components and cause a malfunction.
- Avoid installing in places where there are strong electro-magnetic waves or magnetism. the picture could be distorted.
- Avoid instanning in places where the camera would be subject to strong vibrations. This could damage components and degrade the picture.

Controls, connectors and indicators





① Camera mounting holes (1/4-inch)

Use one of these threaded holes when mounting the camera on a mount or turret. Two threaded holes are provided on the front and rear and can be selected according to the circumstance.

② Camera mounting bracket locking screws (x 3 : M2.6 x 5mm)

Do not use any screw longer than 5 mm.

③ Camera mounting bracket

The bracket has been attached on the bottom of the camera before shipment. It can also be attached on the top according to the circumstance.

To re-attach the bracket use the threaded holes at the top, with the 3 camera mounting bracket locking screws ② .

④ Backfocus adjustment ring

This ring both allows the adjustment of the backfocus to and switch as the lens mounting method between C and CS. Loosen the BF LOCK screw ⑤ by turning it counterclockwise before turning this ring, and be sure to secure screw ⑤ by turning it clockwise after turning this ring. The TK-C1380 / TK-C1381 has been adjusted to the optimum position for the C mount before shipment.

⑤ [BF LOCK] Backfocus locking screw

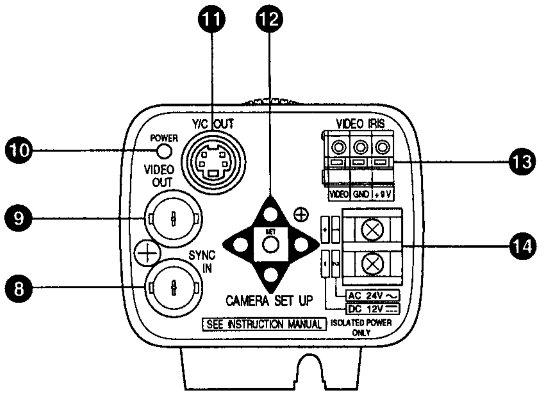
This screw locks the backfocus adjustment mechanism.

⑥ Lens mount

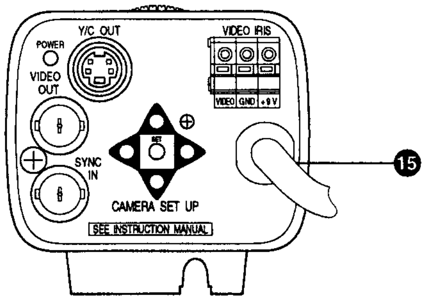
The lens mount is compatible with C-mount lenses (1/2 and 2/3 inch) and CS-mount lenses (1/2 inch).

⑦ [DC IRIS] DC iris connector

Connect to an auto-iris lens which does not incorporate an EE amplifier. (See "Lens" on page 14.)


⑪
⑫
⑩
⑨
⑧
⑬
⑭
POWER
Y/C OUT
VIDEO IRIS
VIDEO OUT
SYNC IN
CAMERA SET UP
VIDEO GND +9V
AC 24V∼
DC 12V⎓
SEE INSTRUCTION MANUAL
ISOLATED POWER ONLY

TK-C1380


POWER
Y/C OUT
VIDEO IRIS
VIDEO OUT
SYNC IN
CAMERA SET UP
VIDEO GND +9V
SEE INSTRUCTION MANUAL
⑮

TK-C1381

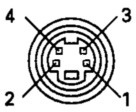
⑧ [SYNC IN] Sync signal input connector
This BNC connector accepts the input of an external sync signal such as a composite video (VBS) or black burst (BB) signal. When a sync signal is input into this connector, the camera operation is automatically synchronized with the external sync signal.
The 75-ohm termination of this connector can be switched on/off on the menu screen as required. (For details, see "TERM. [75-ohm termination setting]" on page 6.)

⑨ [VIDEO OUT] Video signal output connector
This BNC connector outputs a composite video signal. Connect this to the video input connector of a video monitor, switcher, etc.

⑩ [POWER] Power indicator lamp
This lights when power is supplied to the camera.

⑪ [Y/C OUT] Y/C output connector
This 4-pin connector outputs the luminance and chrominance signal.

- Pin configuration of Y/C OUT connector



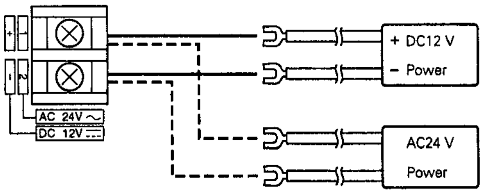
Pin No.	Signal
1	GND
2	GND
3	Luminance (Y, 1 V(p-p), 75-ohm)
4	Chrominance (C, 0.286 V(p-p), 75-ohm), NTSC Chrominance (C, 0.3 V(p-p), 75-ohm), PAL

Controls, connectors and indicators (continued)

⑫ CAMERA SET UP] Camera set-up screen operation buttons
These buttons are used in the set-up operations.
For details, see "Set-up functions" from page 5.

⑬ [VIDEO IRIS] Video iris connector
Connect to an auto-iris lens incorporating an EE amplifier. (See "Lens" on page 14.)

⑭ [DC12V/AC24V] Power input connector (TK-C1380 only)
Connect a DC 12 V ± 10% or AC 24 V ± 10%, 50/60 Hz power supply.


AC 24V∼
DC 12V⎓
+ DC12 V
– Power
AC24 V
Power

⑮ Power cable (for TK-C1381 only)
Connect to the commercial AC 230V outlet.

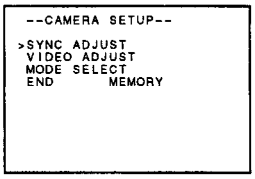
Caution
When you use this camera, the socket- outlet shall be installed near the equipment so as to disconnect easily.

Setup functions

■ CAMERA SETUP screen

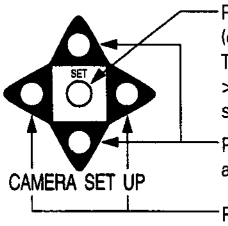
The camera is adjusted using the CAMERA SETUP screen.
Press the SET button to display the CAMERA SETUP screen on the monitor.

CAMERA SETUP screen



```
--CAMERA SETUP--
>SYNC ADJUST
 VIDEO ADJUST
 MODE SELECT
 END        MEMORY
```

Operation buttons


SET
CAMERA SET UP

Press to display the SET UP screen (current adjustment condition).
To clear the function, move the cursor > to "END" and press here. The SET UP screen returns to the normal screen.

Press to move the cursor > or select an adjustment option.

Press to select the mode of the adjusted item or set its level.

● SYNC ADJUST menu
For settings related to the sync signals.

```
--SYNC ADJUST--

>TERM.        ON
 H PHASE      25
 SC COARSE     1
 SC FINE     128
 LINE LOCK   OFF
 V COARSE      1
 V FINE      128
 END
```

1. Move the cursor to "SYNC ADJUST".
2. Press the SET button to display the SYNC ADJUST menu.
   (See pages 6 and 7 for the operating procedure.)

● VIDEO ADJUST menu
For settings related to the video signal.

```
--VIDEO ADJUST--

>IRIS          0
 COLOUR        0
 PEDESTAL      0
 ENHANCE       0
 HUE           0
 END
```

1. Move the cursor to "VIDEO ADJUST".
2. Press the SET button to display the VIDEO ADJUST menu.
   (See pages 7 and 8 for the operating procedure.)

● MODE SELECT menu
For settings related to the camera functions.

```
--MODE SELECT--

>ID          OFF
 AGC GAIN   18dB
 SUPER AGC   OFF
 SHUTTER   MANU(   )
 BLC         OFF
 Av:Pk       8:2
 W.BAL      AUTO
 HLI         OFF
 END
```

1. Move the cursor to "MODE SELECT".
2. Press the SET button to display the MODE SELECT menu.
   (See pages 8 to 12 for the operating procedure.)

SYNC ADJUST menu

■ TERM. [75-ohm termination setting]

```
--SYNC ADJUST--

>TERM.        ON
 H PHASE      25
 SC COARSE     1
 SC FINE     128
 LINE LOCK   OFF
 V COARSE      1
 V FINE      128
 END
```

Set according to whether the signal input into the sync signal input terminal ❽ is to be terminated with 75 ohms or not.
ON : Terminated with 75 ohms
OFF : Open
Initial set ON.

Note:
The terminal is open when the power is OFF.

■ H PHASE [Horizontal phase adjustment]

```
--SYNC ADJUST--

 TERM.        ON
>H PHASE      25
 SC COARSE     1
 SC FINE     128
 LINE LOCK   OFF
 V COARSE      1
 V FINE      128
 END
```

Adjustment of the H phase in gen-lock operation. Adjust with reference to another camera (or system).
Variable range : 0 to 50.
Initial set : 25.

■ SC COARSE [Sub-carrier phase coarse adjustment]

```
--SYNC ADJUST--

 TERM.        ON
 H PHASE      25
>SC COARSE     1
 SC FINE     128
 LINE LOCK   OFF
 V COARSE      1
 V FINE      128
 END
```

Coarse adjustment of the SC phase in gen-lock operation. The SC phase can be varied by up to 90° in each direction.
Adjust with reference to another camera (or system) and together with the SC FINE adjustment.
Variable range : 1, 2, 3, 4.
Initial set : 1.

Note:
Only the ▷ button is effective. The ◁ button does not operate.

■ SC FINE [Sub-carrier phase fine adjustment]

```
--SYNC ADJUST--

 TERM.        ON
 H PHASE      25
 SC COARSE     1
>SC FINE     128
 LINE LOCK   OFF
 V COARSE      1
 V FINE      128
 END
```

Fine adjustment of the SC phase in gen-lock operation.
Variation range : 0 to 255.
Initial set : 128.

Notes:
Adjust H PHASE only after adjusting SC COARSE and SC FINE.

■ LINE LOCK [Line lock setting]

```
--SYNC ADJUST--

 TERM.        ON
 H PHASE      25
 SC COARSE     1
 SC FINE     128
>LINE LOCK   OFF
 V COARSE      1
 V FINE      128
 END
```

Setting when the vertical sync signal of the camera is to be locked with the AC power frequency.
ON : LL mode is activated.
OFF : LL mode is unactivated.
Set to OFF when using INT (internal sync) or EXT (external sync).
Initial set : OFF.

Notes:
- Do not apply an external sync signal in the LL mode.
- The display will be switched over between ON and OFF, however, the LL function is only available with the power frequency of 60 Hz.

■ V COARSE [Vertical phase coarse adjustment]

```
--SYNC ADJUST--

 TERM.        ON
 H PHASE      25
 SC COARSE     1
 SC FINE     128
 LINE LOCK   OFF
>V COARSE      1
 V FINE      128
 END
```

Adjustment to align the vertical phase with another camera operating in the line lock (LL) mode. The phase can be varied by up to 180° in courses 1 and 2. Adjust together with the V FINE adjustment.
Variable range : 1, 2.
Initial set : 1.

■ V FINE [Vertical phase fine adjustment]

```
--SYNC ADJUST--

 TERM.        ON
 H PHASE      25
 SC COARSE     1
 SC FINE     128
 LINE LOCK   OFF
 V COARSE      1
>V FINE      128
 END
```

Fine adjustment of the vertical phase in the LL mode.
Variable range : 0 to 255.
Initial set : 128.

VIDEO ADJUST menu

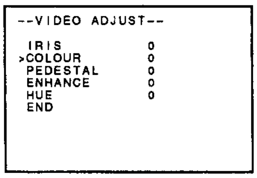
■ IRIS [Iris level]

```
--VIDEO ADJUST--

>IRIS          0
 COLOUR        0
 PEDESTAL      0
 ENHANCE       0
 HUE           0
 END
```

Adjustment of the luminance level of the video signal.
Variable range : – 5 to 5.
Initial set : 0.
- IRIS OPEN...... Increase the number (▷)
- IRIS CLOSE.... Decrease the number (◁)

Note:
When using a video-iris lens or DC-iris lens or when SHUTTER is set to AUTO, set the AGC GAIN of MODE SELECT menu to 0 before starting iris level adjustment.

■ COLOUR [Colour level]



```
--VIDEO ADJUST--

 IRIS         0
>COLOUR       0
 PEDESTAL     0
 ENHANCE      0
 HUE          0
 END
```

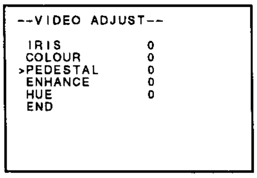
Adjustment of the colour level of the video signal.

Variable range : – 5 to 5.

Initial set : 0.

- To increase colour saturation
  .... Increase the number (▷).
- To decrease colour saturation
  .... Decrease the number (◁).

■ PEDESTAL [Pedestal level]



```
--VIDEO ADJUST--

 IRIS         0
 COLOUR       0
>PEDESTAL     0
 ENHANCE      0
 HUE          0
 END
```

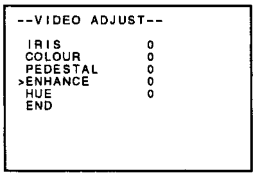
Adjustment of the pedestal level of the video signal.

Variable range : – 5 to 5.

Initial set : 0.

- To brighten picture
  .... Increase the number (▷).
- To darken picture
  .... Decrease the number (◁).

■ ENHANCE [Enhancement level]



```
--VIDEO ADJUST--

 IRIS         0
 COLOUR       0
 PEDESTAL     0
>ENHANCE      0
 HUE          0
 END
```

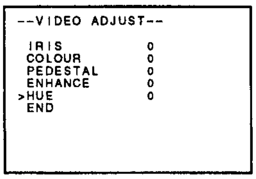
Adjustment of the aperture control level of the video signal.

Variable range : – 5 to 5.

Initial set : 0.

- To sharpen the picture (by enhancing the aperture control and contour level)
  .... Increase the number (▷).
- To soften the picture (by attenuating the aperture control and contour level)
  .... Decrease the number (◁).

■ HUE [Hue adjust]



```
--VIDEO ADJUST--

 IRIS         0
 COLOUR       0
 PEDESTAL     0
 ENHANCE      0
>HUE          0
 END
```

Adjustment of the hue of the video signal.

Variable range: – 5 to 5. Initial set: 0.

•To make yellowish

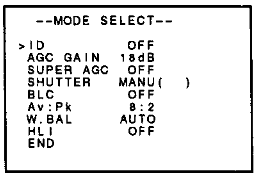
.... Increase the number (▷).

•To make reddish

.... Decrease the number (◁).

MODE SELECT menu

■ ID [Camera ID name/number]



```
--MODE SELECT--

>ID            OFF
 AGC GAIN     18dB
 SUPER AGC     OFF
 SHUTTER     MANU(   )
 BLC           OFF
 Av:Pk         8:2
 W.BAL        AUTO
 HLI           OFF
 END
```

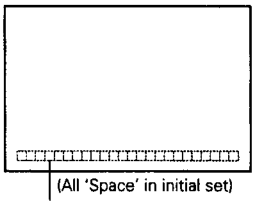
The camera ID can be up to 24 characters.

ON : The camera ID is displayed.

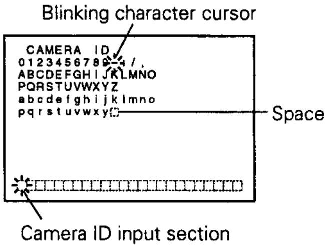
OFF : The camera ID is not displayed.

EDIT : The camera ID can be set.

Monitor screen when "ON" is selected (initial setup)



Monitor screen when "EDIT" is selected



```
CAMERA ID
0123456789-+/.
ABCDEFGHIJKLMNO
PQRSTUVWXYZ
abcdefghijklmno
pqrstuvwxy
```

Setup functions (continued)

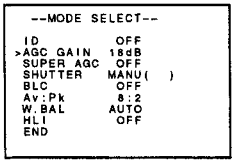
Setting method

1. Select "EDIT" with the ◁ or ▷ button and press the SET button. The CAMERA ID screen appears, with the character cursor and the first character in the input section blinking.

Notes:
The cursor ">" of MODE SELECT menu cannot be moved when ID is set at EDIT.

2. Select a character with the ◁ or ▷ button.
   (Enter a space in positions where no character is to be input.)
3. Press the ▽ button to set the character. Then the input sec-tion for the next character starts to blink.
   (Press the △ button to return to the previous character.)
4. After all characters have been input by repeating steps 2 and 3, press the SET button. The CAMERA SETUP screen is displayed again.
5. ID appears when set to ON.

■ AGC GAIN [Automatic Gain Control]



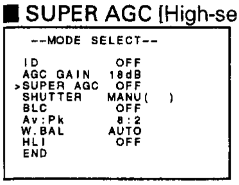
```
--MODE SELECT--

 ID            OFF
>AGC GAIN     18dB
 SUPER AGC     OFF
 SHUTTER     MANU(   )
 BLC           OFF
 Av:Pk         8:2
 W.BAL        AUTO
 HLI           OFF
 END
```

Setting the max. gain of the AGC (Automatic Gain Control).

Variable range: 0, 9 and 18 dB.

Initial set: 18 dB.

■ SUPER AGC [High-sensitivity automatic gain control]



```
--MODE SELECT--

 ID            OFF
 AGC GAIN     18dB
>SUPER AGC     OFF
 SHUTTER     MANU(   )
 BLC           OFF
 Av:Pk         8:2
 W.BAL        AUTO
 HLI           OFF
 END
```

Use this function if the picture is not bright enough when AGC GAIN is set to 18 dB.

ON : The gain is further increased.

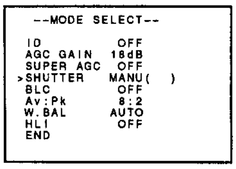
OFF : The gain is not increased.

Initial set : OFF.

Notes:

- When AGC GAIN is set to 9 or 18 dB or when SUPER AGC is set to ON, dark parts of the picture may look noisy. This is because sensitivity increased and it is not a malfunction.
- With SUPER AGC set to ON, the level reaches 18 dB even with AGC GAIN at 0 or 9 dB. AGC GAIN display does not change however.
- The camera ID level can be adjusted by turning SUPER AGC on and off.
- The response of the SUPER AGC may be retarded against the acute level changes.

■ SHUTTER [Electronic shutter]



```
--MODE SELECT--

 ID            OFF
 AGC GAIN     18dB
 SUPER AGC     OFF
>SHUTTER     MANU(   )
 BLC           OFF
 Av:Pk         8:2
 W.BAL        AUTO
 HLI           OFF
 END
```

Set according to whether the electronic shutter is to be switched manually or automatically.

• MANUAL	: 1/60s : NTSC, 1/50s : PAL, 1/100s : NTSC, 1/120s : PAL, 1/250s, 1/500s, 1/1000s, 1/2000s, 1/4000s, 1/10000s.
• AUTO	: 1/50 - 1/100000s : PAL
Variable range	: 1/60-1/100000 : NTSC
Initial set	: MANU (1/50) : NTSC MANU (1/60) : PAL

<Setting in MANUAL mode>

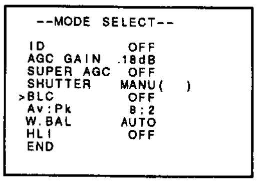
1. Press SET button in MANU (1/60 : NTSC, 1/50 : PAL) mode, and ( ) are removed to allow setting.
2. Change the shutter speed with ◁ or ▷ button.
3. Press SET button again, and ( ) comes out to finish shutter speed setting.

If the AUTO mode or a high-speed shutter mode is selected under fluorescent lighting, the picture could flickering or the white balance could be un-stable.

In such a case, the flickering and white balance variation can be improved by setting the shutter speed to 1/100 (1/120) in an area where the local power supply frequency is 50 (60) Hz or to 1/60 (1/50) in an area where it is 60 (50) Hz.

> **Note:**
> When shutter speed is higher, goes to worse the smear which is a phenomenon inherent to CCDs.

■ BLC [Back light compensation]



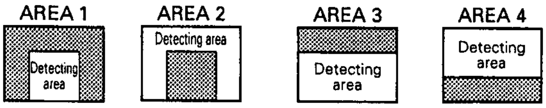
```
  --MODE SELECT--

 ID           OFF
 AGC GAIN    .18dB
 SUPER AGC    OFF
 SHUTTER     MANU(   )
>BLC          OFF
 Av:Pk        8:2
 W.BAL       AUTO
 HLI          OFF
 END
```

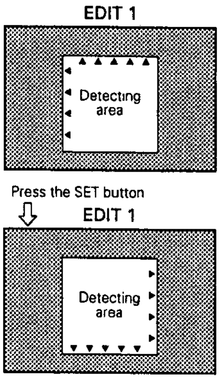
Set when there is a strong light source in the background. The BLC provides four fixed areas and 2 user-set areas.

Variation values : OFF, AREA1, AREA2, AREA3, AREA4, EDIT1, EDIT2.
Factory setup : OFF.

1. Select AREA with ◁ ▷ buttons.
2. Press the SET button to show "detecting". Set the area as required.
3. When setting is done, press the SET button again and MODE SELECT screen will resume.

Fixed area



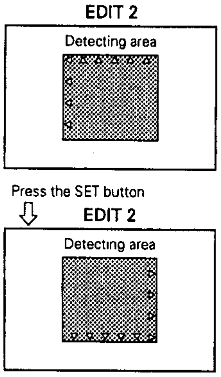


User set area

EDIT1

Use this area when the metered area is located at the center of the field of view.

- ◁ button .... Move the detecting area to the left.
- △ button .... Move the detecting area upwards.
- ▷ button .... Move the detecting area to the right.
- ▽ button .... Move the detecting area downwards.



EDIT2

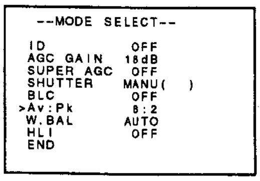
Use this area when the metered area is located at the edge of the screen.

- ◁ button ... Move the undetecting area to the left.
- △ button ... Move the undetecting area upwards.
- ▷ button ... Move the undetecting area to the right.
- ▽ button ... Move the undetecting area downwards.

> **Note:**
> The detecting areas displayed with AREA1 to 4 and EDIT1 and 2 are for reference and may be different from the actual detecting areas.

Setup functions (continued)

■ Av:Pk [Average value: Peak value]



```
  --MODE SELECT--

 ID           OFF
 AGC GAIN    18dB
 SUPER AGC    OFF
 SHUTTER     MANU(   )
 BLC          OFF
>Av:Pk        8:2
 W.BAL       AUTO
 HLI          OFF
 END
```

Sets the ratio between the average value (Av) and peak value (Pk) in exposure detection.

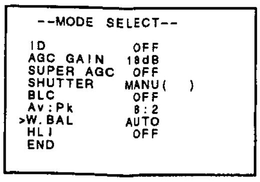
Use this setting when a video-iris lens or DC-iris lens is used or when SHUTTER is set to AUTO.

Variation range : 5:5, 6:4, 7:3, 8:2, 9:1, 10:0.
Initial set : 8:2.

Av value effect : Increase the Av value when part other than the high light part are dark and look washed out. This setting is used when there is artificial lighting in a dark room. (Example: 10:0)

Pk value effect : Increase the Pk value when halation tends to be observed in the highlight part of the picture. (Example: 5:5)

■ W.BAL [White balance]

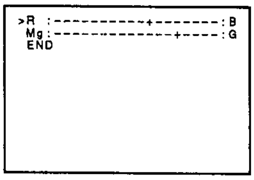


```
  --MODE SELECT--

 ID           OFF
 AGC GAIN    18dB
 SUPER AGC    OFF
 SHUTTER     MANU(   )
 BLC          OFF
 Av:Pk        8:2
>W.BAL       AUTO
 HLI          OFF
 END
```

Automatic or manual setting of the white balance in the color temperature range of 2500K to 7000K.

AUTO : Automatic color temperature tracking mode.
MANUAL : Manual adjustment mode.
Initial set : AUTO.

MANUAL adjustment screen

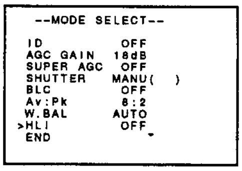


```
>R  :------------+----------:B
 Mg :----------------+------:G
 END
```

1. Adjustment screen appears when pressing the SET button on the "MANUAL" mode.
2. Adjust with ◁ or ▷ button.
   ◁ button is used for adjustment to red (magenta, whereupon + is moved to R (Mg).
   ▷ button is used for adjustment to blue (green), whereupon + is moved to B (G).
3. Switching between R/B and Mg/G can be performed with △ or ▽ button.

> **Note:**
> In AUTO mode, the optimum white balance may not be obtained when the light source has a color temperature outside the adjustment range.
> In such a case, set W.BAL to the MANUAL mode.

■ HLI [Highlight inverter]



```
  --MODE SELECT--

 ID           OFF
 AGC GAIN    18dB
 SUPER AGC    OFF
 SHUTTER     MANU(   )
 BLC          OFF
 Av:Pk        8:2
 W.BAL       AUTO
>HLI          OFF
 END
```

The HLI function inverts the highlight part of picture so that the parts around it can be seen more clearly.

Variable values : OFF, ON(1), ON(2), ON(3)
Initial set : OFF

ON is adjustable in three degrees. The smaller the number, the brighter the area to be blacked.

<How to set HLI>

1. Press ◁ or ▷ button, and OFF is changed to ON (1)to enter the HLI mode.
2. Press SET button to remove ( ), and ON1is displayed to allow on-screen selection.
3. Monitoring the screen, select one of ON1,ON2 and ON3 with ◁ or ▷ button.
4. Press SET button again, and ( ) comes out to finish setting.

■ To clear the setup functions

```
--CAMERA SETUP--

SYNC ADJUST
VIDEO ADJUST
MODE SELECT
>END        MEMORY
```

1. Move the cursor ">" to END.
2. Select END mode with ◁ or ▷ button.
   MEMORY : Set value holds.
   CLEAR : All the set values resume the values.
3. Press SET button to set the END mode, resuming the initial setting screen.

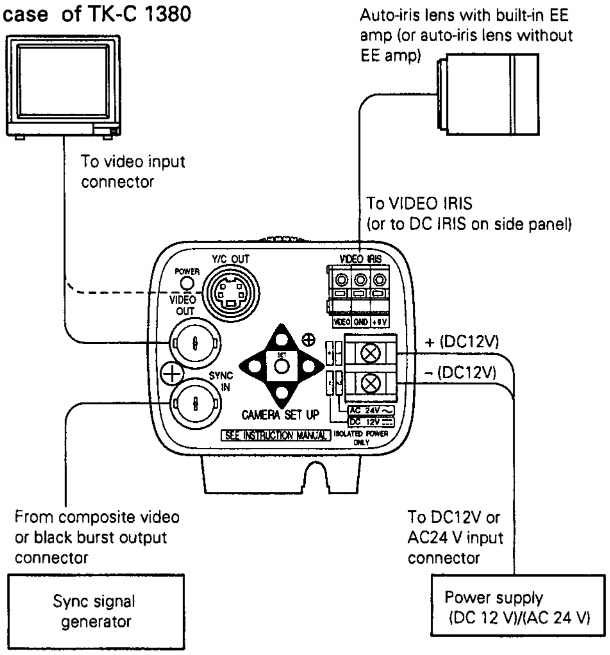
Notes:
ID (camera title) is not cleared with CLEAR.

Connection

■ System connection example

- ● Do not turn on the power of any component before all connections have been completed.
- ● Read the instruction manuals of the components to be connected carefully.

In case of TK-C 1380


Auto-iris lens with built-in EE amp (or auto-iris lens without EE amp)
To video input connector
To VIDEO IRIS (or to DC IRIS on side panel)
Y/C OUT
POWER
VIDEO OUT
VIDEO IRIS
VIDEO GND +9V
+ (DC12V)
– (DC12V)
SYNC IN
SET
CAMERA SET UP
AC 24V~
DC 12V
SEE INSTRUCTION MANUAL
ISOLATED POWER ONLY
From composite video or black burst output connector
To DC12V or AC24 V input connector
Sync signal generator
Power supply (DC 12 V)/(AC 24 V)

Genlock connection

With some systems, genlocking by applying an external sync input requires the horizontal phase (H PHASE) and/or color phase (SC COARSE) (in case the external sync signal is a composite video or black burst signal) to be adjusted.

Notes:
- Genlocking is not possible with a signal containing too much jitter, such as a VCR or videodisc playback signal.
- For details, consult JVC authorized dealer.

Caution
- Be sure to observe the correct +, – polarity when connecting a DC 12 V power input.
- The DC 12 V power should have a ripple voltage of no more than 50 mV.
- Never connect the DC 12 V and AC 24 V power inputs simultaneously.
- Be sure to attach the provided ferrite core to the lens cable or power cable to be connected with this camera. (see page 17 for details)

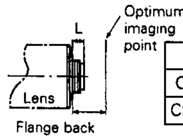
Lens

■ Lens mounting procedure

1. Check the mounting of your lens before attaching it to the camera. The camera has been set for a C mount before shipment (Figure 1-1). When mounting a CS-mount lens, loosen the BF LOCK screw (❺ on page 4) by turning it counter-clockwise and turn the backfocus adjustment ring (❹ on page 4) in the direction of the arrow in Figure 1-1 to switch the mounting method. (Figure 1-2 shows the camera set for a CS mount lens.)

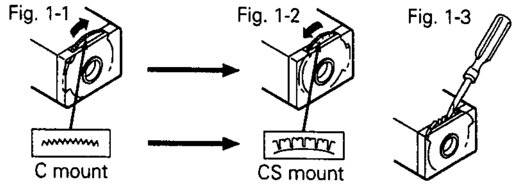
Caution

- The ring cannot be turned by more than a certain amount with your finger. Use a thin object (screwdriver tip, etc.) to turn the ring (Figure 1-3).
- Distance L of the lens mounting section shown in the following illustration should comply with the condition shown in the following table. Never use a lens with a flange back distance L greater than, the one Specified in the chart below. As this will damage the inside of the camera or may make normal mounting impossible. Also, be careful not to attempt to mount a C-mount lens while the camera is set for a CS mount.



Lens	Flange back	Distance L
C-mount lens	17.526 mm	No more than 10 mm
CS-mount lens	12.5 mm	No more than 5.5 mm

Fig. 1

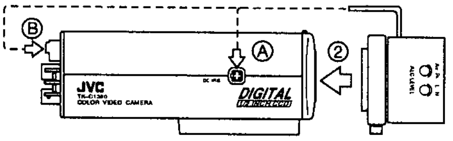


2. Mount the lens on the camera by turning the lens clockwise and adjust its position.

3. When an auto-iris lens is used, also connect the lens cable to the camera.

Ⓐ If the lens does not incorporate an EE amp, connect the cable to the DC IRIS connector on the side panel (Figure 2-1).
Ⓑ If the lens incorporates an EE amp, connect the cable to the VIDEO IRIS connector on the rear panel (Max 50mA).

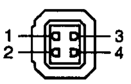
Fig. 2



Lens (continued)

Fig. 2-1

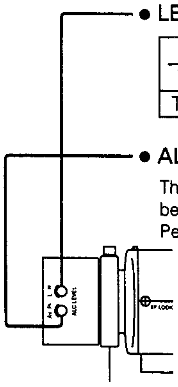
Connector pin layout (DC IRIS) (External view of camera connector)



1: Brake⊖
2: Brake⊕
3: Drive ⊕
4: Drive ⊖

- After completing connections as shown in "Connection" on page 14, supply power to the camera, display a picture on the monitor and check the image.
  Auto-iris lenses have generally been adjusted for the widest applicability before shipment, but readjustment may sometimes be necessary depending on the conditions of the objects to be shot and the lens combination. If the picture recorded using such a lens looks unnatural, readjust as shown below

- Auto-iris lens with built-in EE amp



- **LEVELadjustment**

Monitor screen	LEVEL turning direction
To darken picture	Counterclockwise (toward L)
To brighten picture	Clockwise (toward H)

- **ALC adjustment**

This cannot be adjusted on the lens. The ALC should be adjusted as described in "Av : Pk [Average value : Peak Value]" on Page 11.

Auto-iris lens with built-in EE amp

Caution

Do not turn the LEVEL control too far towards "L" as this could cause the AGC of the camera to increase the gain, making the picture look rough.

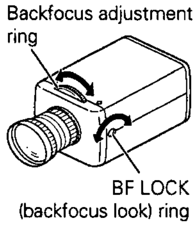
- Auto-iris lens without EE amp
  Re-adjust as descried in "IRIS [Iris level]" on page 7.

■ Backfocus adjustment

The backfocus has been adjusted before shipment so that the widest range can be obtained with C-mount lenses, but readjustment is necessary when the lens mount is switched to the CS mount or a combination lens is used. When necessary, readjust the backfocus by the following procedure.

<When a fixed – focus lens is used>

Readjust the backfocus when the optimum focusing cannot be obtained by adjusting the focusing ring of the lens.


Backfocus adjustment ring
BF LOCK
(backfocus look) ring

1. Loosen the BF LOCK screw by turning it counterclockwise with a screwdriver.
2. Optimize the focus by turning the backfocus adjustment ring.
3. Lock the BF LOCK screw by turning it clockwise.

<When a zoom lens is used>

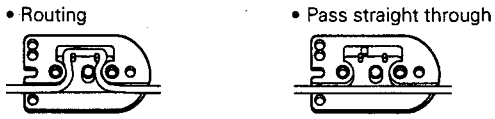
Readjust the backfocus when focusing is lost during zooming (from wide angle to telephoto).

1. Loosen the BF LOCK screw by turning it counterclockwise with a screwdriver.
2. Shoot a fine pattern of as dark as possible an object at a distance of more than 3 meters.
3. Set the zoom for telephoto and adjust the focus with the lens's focusing ring.
4. Set the zoom for wide angle and adjust the focus by turning the backfocus adjustment ring. (Refer to "When a fixed-focus lens is used" above.)
   - Repeat steps 3 and 4 a few times.
5. Lock the BF LOCK screw by turning it clockwise.

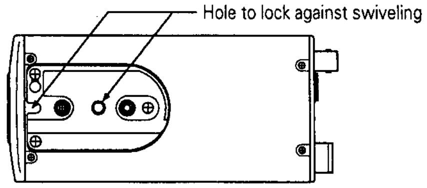
■ Fixing the lens cable

If the lens cable is too long and gets in the way, wrap the cable round the camera mounting bracket as shown below.

How to thread the iris cable (Example)


- Routing
- Pass straight through

How to mount the camera on a tripod stand, fixing unit or pan / tilt unit.

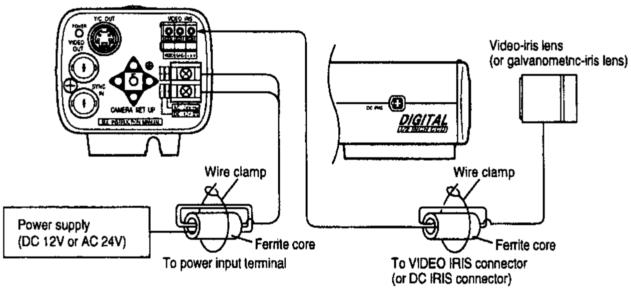

Hole to lock against swiveling

- Special precautions must be taken for ganging the camera on a wall or a ceiling. Consult with an installation professional without attempting at installation all by yourself.
- We are by no means liable for any dropping or other accident due to improper installation.

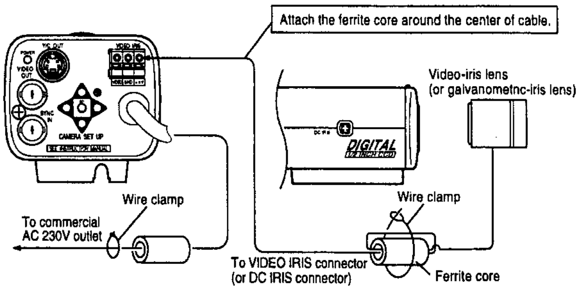
How to use the ferrite core

To retain electromagnetic compatibility, use the provided ferrite cores when connecting to the lens or the power source.

(TK-C1380)


Video-iris lens
(or galvanometric-iris lens)
DIGITAL
Wire clamp
Wire clamp
Power supply
(DC 12V or AC 24V)
Ferrite core
Ferrite core
To power input terminal
To VIDEO IRIS connector
(or DC IRIS connector)

(TK-C1381)


Attach the ferrite core around the center of cable.
Video-iris lens
(or galvanometric-iris lens)
DIGITAL
Wire clamp
Wire clamp
To commercial
AC 230V outlet
To VIDEO IRIS connector
(or DC IRIS connector)
Ferrite core

Notes:

Install the ferrite cores within 50 mm of the camera-side connectors. (Fasten with the ferrite core with the wire clamp.)

For lens connection	: Pass the lens cable through the ferrite core twice and connect it to the camera.
For power supply connection	: Pass the power cable through the ferrite core three times and connect it to the camera.

Notes:

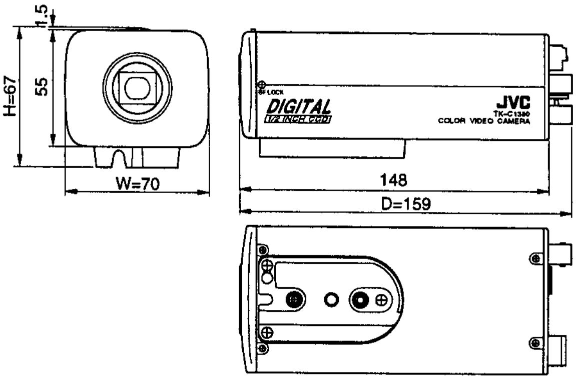
Install the ferrite cores within 50 mm of the camera-side connectors. (Fasten the ferrite core with the wire clamp.)

For lens connection	: Pass the lens cable through the ferrite core twice and connect it to the camera.
Power cable	: Pass the power cable through the ferrite core and connect to the AC 230V outlet.

Specifications

Image pickup device	: 1/2-inch, interline-transfer CCD
Effective pixels	: 380,000 pixels [768(H) x 494(V)] (NTSC) 440,000 pixels [752(H) x 582(V)] (PAL)
Sync systems	: Internal, external, power sync (60 Hz areas only) : NTSC (50 Hz areas only) : PAL
Scanning frequency	: 15.734 kHz (H), 59.94 Hz (V) : NTSC 15.625 kHz (H), 50.0 Hz (V) : PAL
Horizontal resolution	: 470 TV lines (H) : NTSC 460 TV lines (H) : PAL
Video S/N	: 48 dB
Minimum illumination	: 0.95 lx (25%, F1.2, AGC "ON")
Lens mount	: C/CS mount
Power supply	: AC 24 V 50/60 Hz or DC 12 V, (TK-C1380) AC 220 V to 240V, 50/60 Hz (TK-C1381)
Power consumption	: AC 24 V 50/60 Hz 380 mA, DC 12V 470 mA (TK-C1380) AC 230 V 50/60 Hz 60 mA (TK-C1381)
Ambient temperatures	: – 10 to 50°C (operation), 0 to 40°C (recommended)
Weight	: 740 g (TK-C1380), 870g (TK-C1381)
Accessories	: • 4-pin iris plug x 1 • 4-pin Y/C plug x 1 • Ferrite core x 2

Dimensions (Unit: mm)



Design and specifications are subject to change without notice.

TK-C1380/TK-C1381
COLOUR VIDEO CAMERA

JVC
VICTOR COMPANY OF JAPAN, LIMITED

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Printed in Japan
SC96769 : TK-C1380U
SC96771 : TK-C1380E
: TK-C1381EG

SECTION 1
SERVICE CAUTIONS AND DISASSEMBLY

1.1 REPLACEMENT OF FUSE

Before replacing the fuse, the reason why it blew should be investigated to prevent trouble from spreading. The malfunction should be repaired before replacing the fuse.
When replacing the fuse, make sure to disconnect the power supply from the camera beforehand and to replace it with new one of the specified part number for safety and protection of the set.

1. Remove four screws 1.

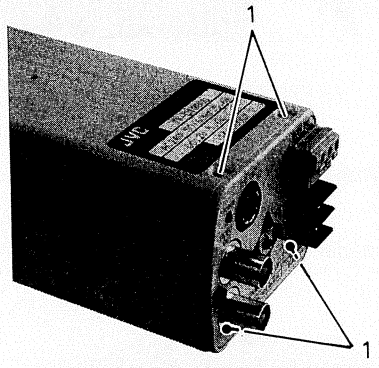


Figure 1-1

2. Open the bottom side of the rear panel A in the direction of the arrow until appeared TERM board. Then pull down the rear panel A in the direction of the arrow.

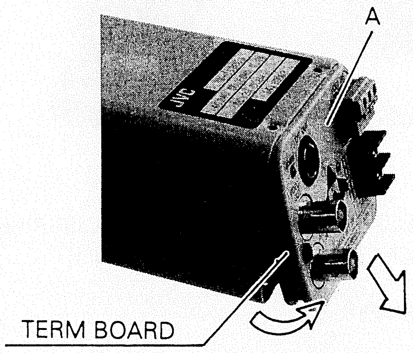
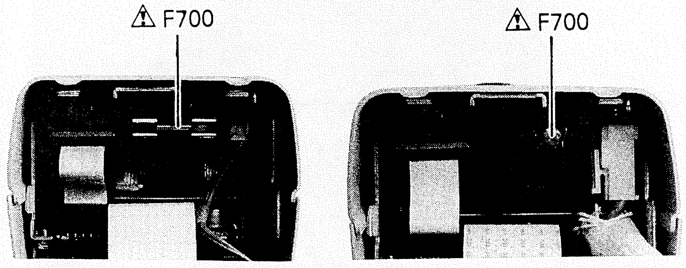


Figure 1-2

3. Then, a fuse on the TERM board is exposed.



(TK-C1380U/TK-C1380E) **(TK-C1381EG)**

Figure 1-3

When replacing a fuse, make sure to use new one of the specified part number for safety and protection of the set.

Symbol No.	Rating	Parts No.	Note
⚠F700	1A, 125V	QMF51U1-1RO	for TK-C1380U
⚠F700	T1A,250V	QMF51A2-1RO	for TK-C1380E
⚠F700	T80mA, 250V	QMF51A2-R80	for TK-C1381EG

1.2 CARD FIT CABLE

Pay careful attention to the connecting side of the card fit cable. When connecting it, insert it so as to contact the copper leaf on its edge to the connector's conductive surface as shown in Figure 1-4.
When disconnecting the card fit cable, pull the cable stoppers in the direction of the arrows. To secure the connection, push the cable stoppers in the reverse direction of the arrows after inserting the cable.

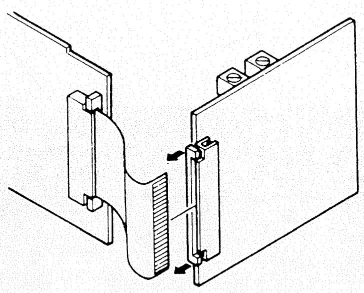


Figure 1-4

1.3 REMOVAL OF BOTTOM COVER

- Remove four screws 2 from on the bottom cover B and detach the bottom cover.

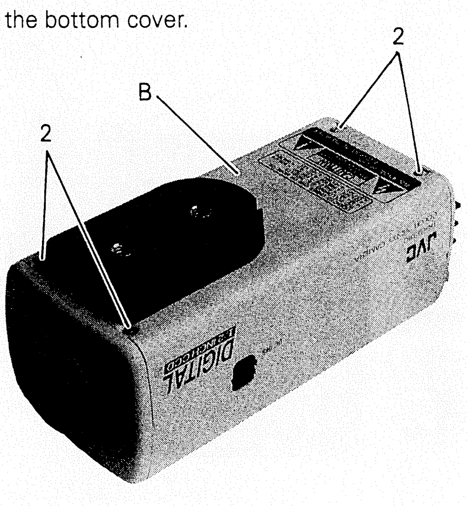


Figure 1-5

1.4 REMOVAL OF TOP COVER

- Removel four screws 3 from on the top cover C and detach the top cover.

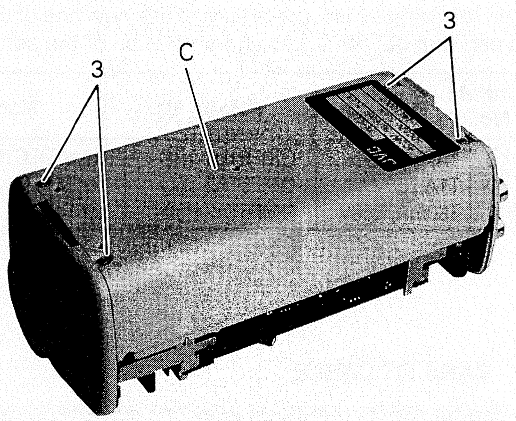


Figure 1-6

1.5 REMOVAL OF MAIN BOARDS

1.5.1 Removing of DSP board

- Remove two screws 4, then detach the DSP board.

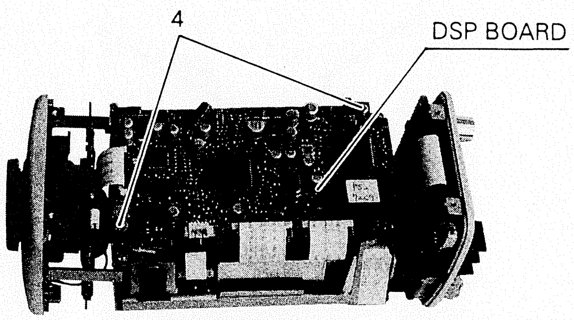


Figure 1-7

1.5.2 Removing of GEN board

- Remove two screws 5, then detach the GEN board.

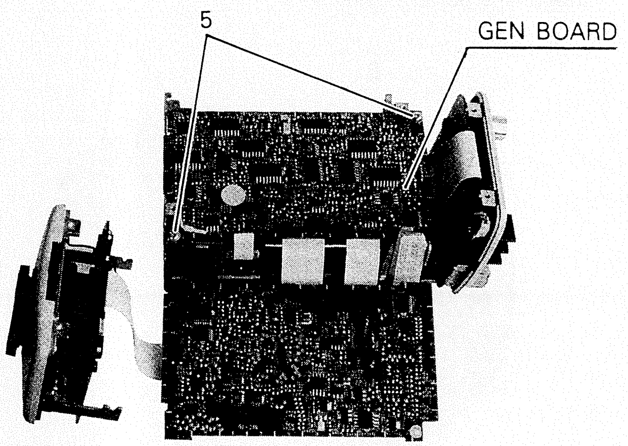


Figure 1-8

1.5.3 Removing of DC IRIS board

- Remove a screw 6, then detach the DC IRIS board.

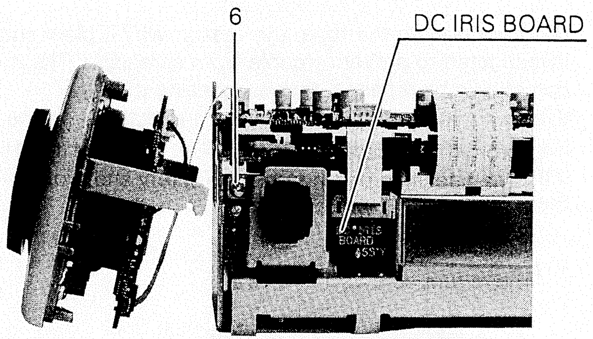


Figure 1-9

1.5.4 Removing of POWER board

1. TK-C1380

a. Remove connectors D and E.

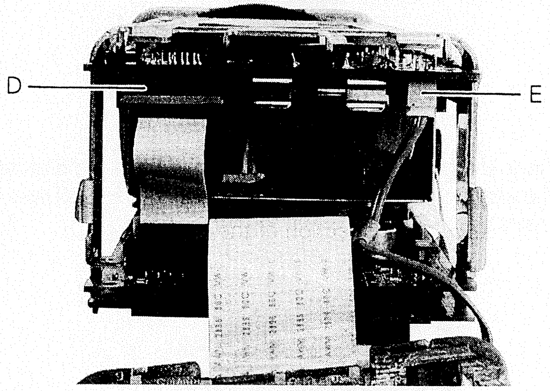


Figure 1-10

b. Remove the DSP board, GEN board and DC IRIS board. (See the section "1.5.1", "1.5.2" and "1.5.3")

c. Remove the sheet F.

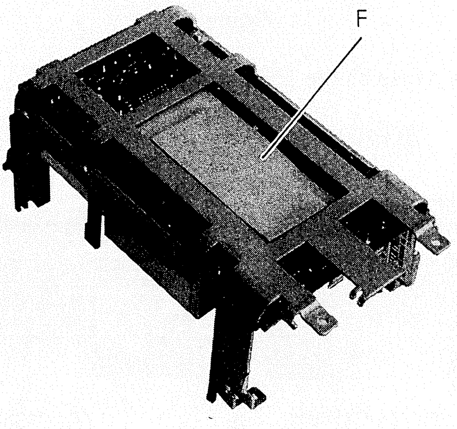


Figure 1-11

d. Remove the two screws 7, then slide the POWER board with shield case G in the direction of the arrow.

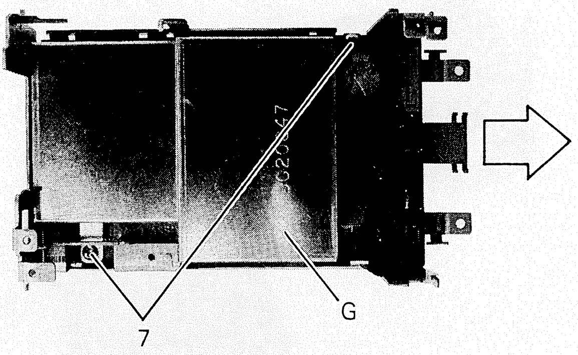


Figure 1-12

2. TK-C1381

a. Disconnect the connectors D and H.

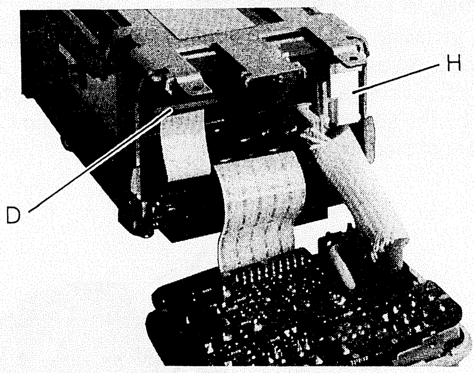


Figure 1-13

b. Remove the DSSP board, GEN board and DC IRIS board. (See the section "1.5.1", "1.5.2" and "1.5.3")

c. Remove the sheet F.

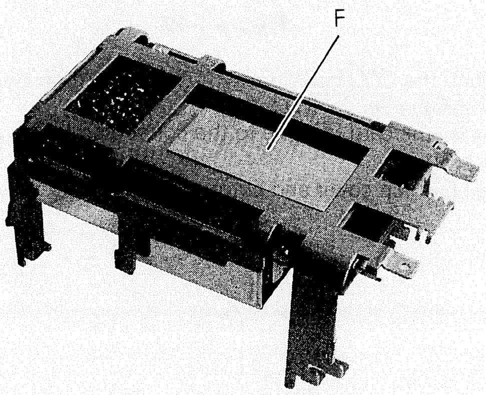


Figure 1-14

d. Remove two screws 7, then slide the POWER board with shield case G in the direction of the arrow.

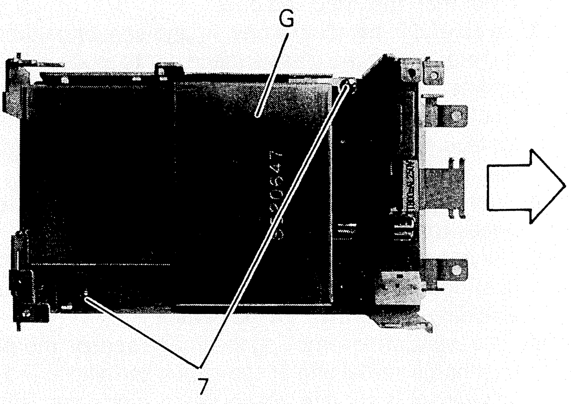


Figure 1-15

1.6 REPLACEMENT OF COLOR CCD IMAGE SENSOR

- The CCD image sensor is not interchangeable with anything other than the specified one.
- Be careful in handling a new image sensor neither to leave fingerprints on the glass surface nor to make it stained with grease.
  To clean dust and greasy stain, breathe out to mist the glass surface and gently wipe it with cotton swab, etc. (Do not use alcohol and the like.)
- After replacement of the CCD image sensor, the camera needs to undergo electrical adjustment.
- The image sensor has a weak characteristic in electrostatic destruction. When replacing, make sure of electrostatic shielding of the CCD image sensor.
- For a while after removing the image sensor, there are electric charge remaining at the circuit terminals. If a new image sensor is set into the socket in such a condition, it may damage it in a moment because of stored electric charge. When replacing the image sensor, wait a few (2 to 3) minutes after removing it before setting new one into the socket.

● Removing of CCD image sensor

1. Remove the bottom cover and top cover. (See the section "1.3" and "1.4")
2. Disconnect the connector J.

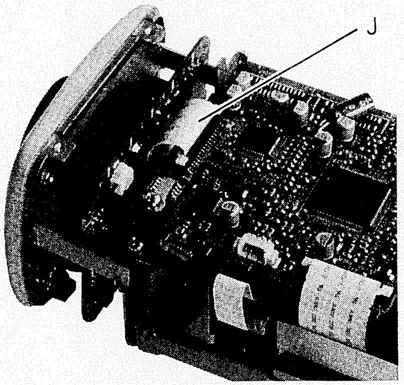


Figure 1-16

3. Remove two screws 8 and then CCD board has removed with CCD image sensor.

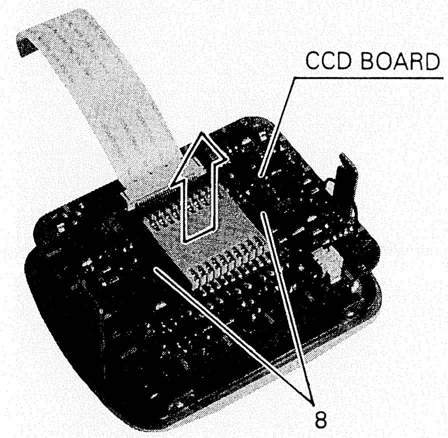


Figure 1-17

4. Detach the CCD image sensor and sensor holder K slowly in the direction of the arrow.

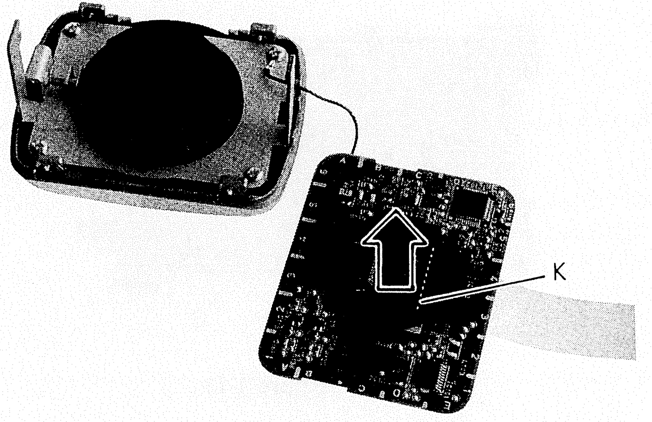


Figure 1-18

● Installing of CCD image sensor

1. When installing a CCD image sensor, pay careful attention to its orientation.
2. Put the CCD image sensor and sensor holder K on the CCD board by the sensor holder's protrusion L and the CCD image sensor's concave M.

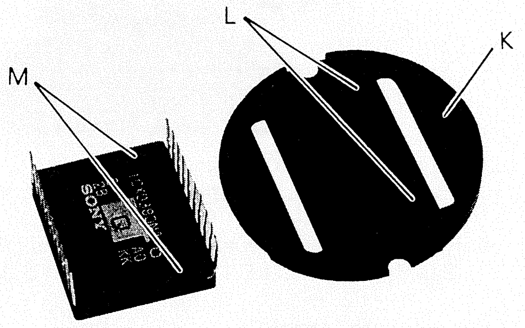


Figure 1-19

3. Attach the CCD board to the front frame with two screws 8. (See the Figure 1-17)
4. Connect the card fit cable to the connector J. (See the Figure 1-16)
5. Attach the top cover and bottom cover.

1.7 EP-ROM

IC311 (M28F512-12C1 : SGS THOMSON) on the DSP board is the EP-ROM whose control program is written on the memory. The control program cannot be changed unless it was changed on the whole. For reference, the original IC M28F512-12C1 has no program written inside it, therefore, if it needs replacement, place and order for it with the program number, which is listed in the electrical parts list of the service manual. When making an order, make sure to do it to JVC not to SGS THOMSON since the latter cannot ship it with the control program.

● Replacement of IC ROM

1. For removing the IC ROM, it is recommended to use a special tool, however, two small screwdrivers are substitutable for it.

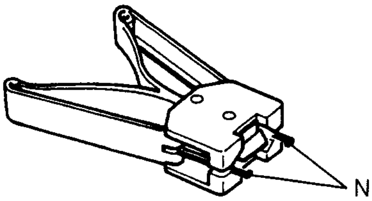


Figure 1-20 Example of special tool

2. Insert the portions N of the special tool into the notches P of the IC socket to pick up the IC. When using small screwdrivers, insert their tips into the notches P respectively and pick up the IC with the two screwdrivers.

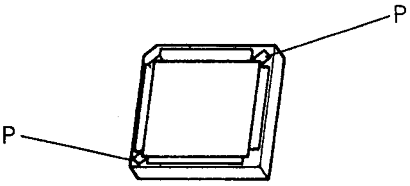


Figure 1-21

3. When in a new IC for replacement, make sure of its orientation and insert it gently into the IC socket with fingers keeping the IC level with the board surface.

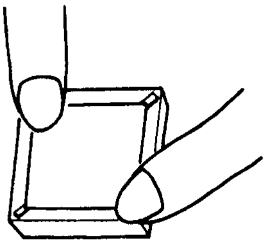


Figure 1-22

1.8 REFFERENCE REPLACEMENT PERIODS OF PARTS WHITCH REQUIRE MAINTENANCE AND INSPECTION

Periodical maintenance and inspection are required to maintain the initial performance and reliability of the unit. Table 1-1 has been compiled assuming the use of the unit under room temperature, and the periods indicated in the table are greatly variable depending on the operating environment and conditions. Lack of proper maintenance, inspection and servicing will result in great reductions of the times indicated in the table and will cause other effects as well.

Table 1-1

Model	PCB Name	Symbol No.	Reference Period
TK-C1380	POWER	C702 C703 C718 C719 C720 C722	30,000 hours or 3 years 30,000 hours or 3 years 30,000 hours or 3 years 30,000 hours or 3 years 30,000 hours or 3 years 30,000 hours or 3 years
TK-C1381	POWER	C701 C706 C708	30,000 hours or 3 years 30,000 hours or 3 years 30,000 hours or 3 years

The figures shown in Table 1 are accumulated operating hours assuming that the unit is operated for 24 hours a day under room temperature (approx. 25°C). The figures will be reduced to 15,000 hours or 1.5 years if the unit is accommodated in a camera housing or used outdoors.

NOTE:

- Be sure to use the specified replacements which can be identified by referring to the SECTION 5. ELECTRICAL PARTS LIST.

SECTION 2
ELECTRICAL ADJUSTMENTS

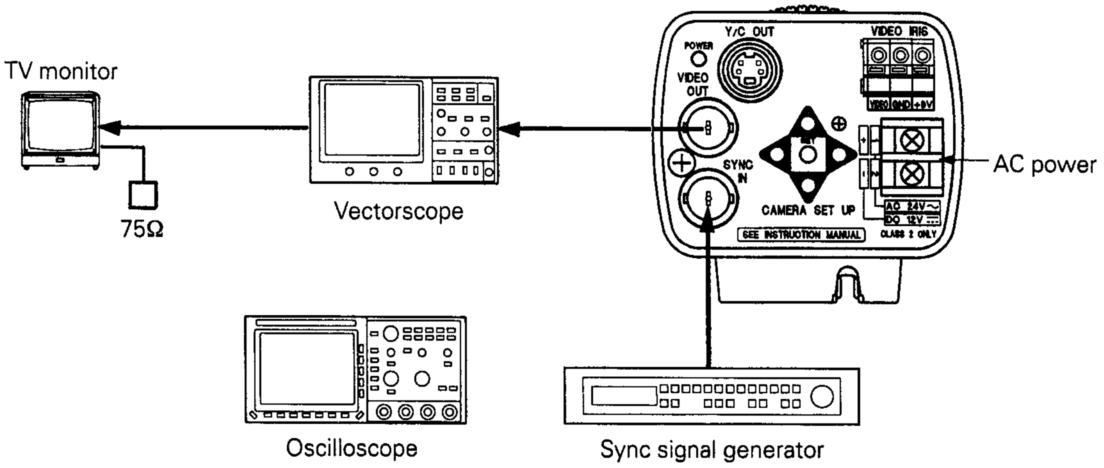
NOTES:
- When make electrical adjustments, need the 24V AC or 12V DC as power supply for TK-C1380, 230V AC as power supply for TK-C1381.
- Make sure to warm up the camera for more then 30 minutes before adjustment.

2.1 EQUIPMENT NECESSARY FOR ADJUSTMENT

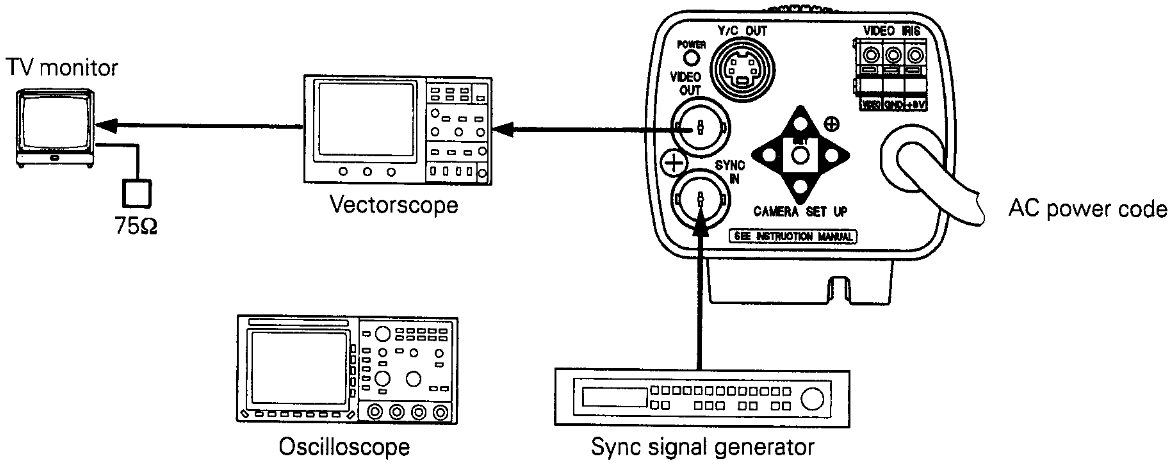
- **Oscilloscope**
  Available for 100 MHz or more band and calibrated
- **Frequency counter**
  Measurable in 8 digits or more
  Stability of 0.1 ppm or 1 × 10^{-7} or more at 0°C to 40°C
- **Digital voltmeter**
  Input impedance of 10 MΩ or more and calibrated
- **Vectorscope**
  Calibrated
- **TV monitor**
  Color type with input impedance of 75Ω
- **Lens**
  Manual IRIS lens (HZ-F8081 etc.)
- **GLAY SCALE CHART**
  GS-2L (Reflection type)
- **COLOR BARS CHART**
  GC-2T (Transmission type)

2.2 GENERAL SETUP

Hook up the equipment as shown in the figure.


TV monitor
75Ω
Vectorscope
Y/C OUT
POWER
VIDEO OUT
VIDEO IRIS
VIDEO GND +9V
SET
SYNC IN
CAMERA SET UP
SEE INSTRUCTION MANUAL
AC 24V~
DC 12V
CLASS 2 ONLY
AC power
Oscilloscope
Sync signal generator

(a) Connecting to TK-C1380U/TK-C1380E


TV monitor
75Ω
Vectorscope
Y/C OUT
POWER
VIDEO OUT
VIDEO IRIS
VIDEO GND +9V
SET
SYNC IN
CAMERA SET UP
SEE INSTRUCTION MANUAL
AC power code
Oscilloscope
Sync signal generator

(b) Connecting to TK-C1381EG

Figure 2-1

2.3 SETUP FOR ADJUSTMENT

Note:

Before adjusting the camera, note down the settings in detail before adjusting the camera and recover the user settings after necessary adjustments are complete.

2.3.1 Setting the GEN LOCK mode

1. Press the "SET" button on the rear panel, and setup screen is displayed on the monitor screen as shown in Figure 2-3.

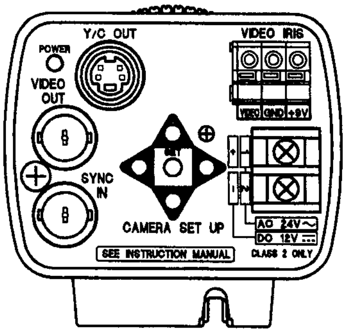
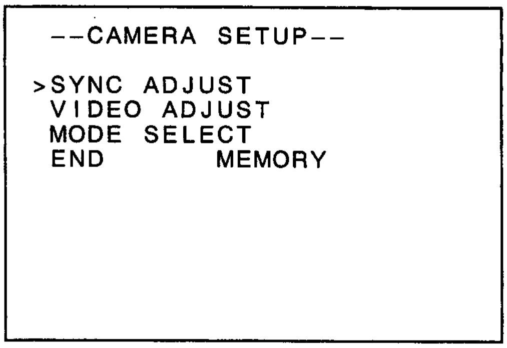


Figure 2-2 (Ex. TK-C1380)

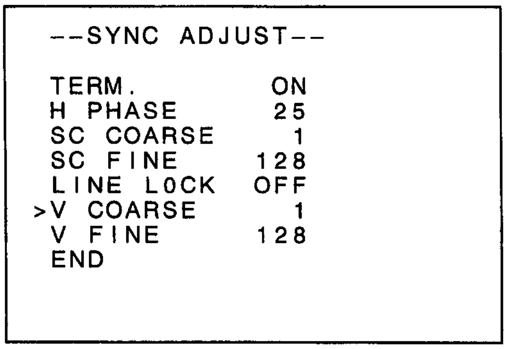


```
--CAMERA SETUP--

>SYNC ADJUST
 VIDEO ADJUST
 MODE SELECT
 END       MEMORY
```

Figure 2-3

2. Shift the cursor ">" to point to the "SYNC ADJUST" with ▲ or ▼ button, than press the "SET" button.
3. SYNC ADJUST menu screen displayed on the monitor screen as shown in Figure 2-4.

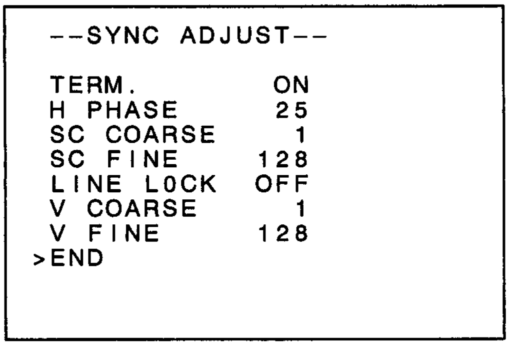


```
--SYNC ADJUST--

 TERM.         ON
 H PHASE       25
 SC COARSE      1
 SC FINE      128
 LINE LOCK    OFF
>V COARSE       1
 V FINE       128
 END
```

Figure 2-4

4. Shift the cursor ">" to point to the "TERM" with ▲ or ▼ button.
5. If mode set is "OFF" on the monitor screen of TERM position, set to "ON" with ▲ or ▼ button.
6. Shift the cursor ">" to point to the "END" with ▲ or ▼ button, then press the "SET" button.
   (Back to the setup screen on the monitor screen)

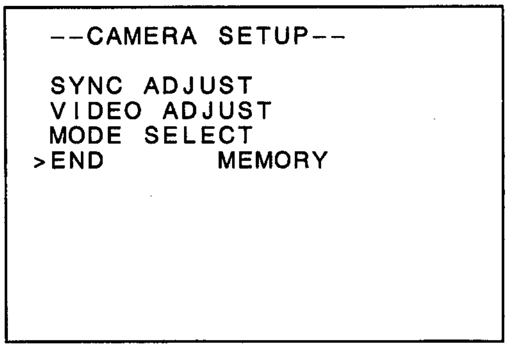


```
--SYNC ADJUST--

 TERM.         ON
 H PHASE       25
 SC COARSE      1
 SC FINE      128
 LINE LOCK    OFF
 V COARSE       1
 V FINE       128
>END
```

Figure 2-5

7. Shift the cursor ">" to point to the "END MEMORY" with ▲ or ▼ button, than press the "SET" button.



```
--CAMERA SETUP--

 SYNC ADJUST
 VIDEO ADJUST
 MODE SELECT
>END       MEMORY
```

Figure 2-6

2.3.2 Operation of the adjustment mode

Note:
- The electrical adjustment are using "CAMERA SET UP" buttons on the rear panel with adjustment mode.

1. Press the "SET" button while connect the power supply.
2. Service menu is display on the monitor screen as shown in Figure 2-7.

```
>MONITOR
 ADJUST
 END
```

Figure 2-7

3. Shift the cursor ">" to point to the "ADJUST" with ▲ or ▼ button, and than press the "SET" button on the rear panel.
4. The display changes as shown in Figure 2-8 (ADJUSTMENT MENU) and the camera enters the adjustment mode. Shift the cursor ">" of the each adjustment, and adjust the data with ◀ or ▶ button.

```
>5.7V         157
 FSC          159
 FH           165
 Y GAIN       160
 BURST        179
 C GAIN       196
 R GAIN       116
 B GAIN        95
 ALC LEVEL    108
 H PHASE      159
 END
```

Figure 2-8

5. After the adjustment, shift the cursor ">" to point to the "END" and than press the "SET" button on the rear panel. The display changes the service menu. So adjustment mode has ended.
6. Shift the cursor ">" to point to the "END", and then press the "SET" button on the rear panel. So service menu has ended.

Notes:
- Adjusting data is not memoried until select the "END" on the service menu and press the "SET" button on the rear panel.
- When select the "MONITOR" on the service menu, camera status displayed on the monitor screen as shown in Figure 2-9.

```
IRIS Av Data           31
IRIS.Pk Data           40
IRIS TOTAL Data        17
DC IRIS LENS            0
V.IRIS LENS            26
SHUTTER SPEED           0
AGC Gain              255
W.BAL R-B Data          0
w.BAL Mg-G Data         0
R Gain                262
B Gain                676
```

Figure 2-9

IRIS Av Data : Display between 0 and 1024.
Average value of the image inside the photometric area (around 30 with black, 512 at 100 IRE : NTSC, 100% : PAL).

IRIS Pk Data : Display between 0 and 1024.
Peak value of the image inside the photometric.

IRIS Total Data : Display between 0 and 981.
Around 128 with ALC ON or around 115 with AGC ON, provided that video iris lens adjustment have been completed.

DC IRIS LENS : Display between 0 and 255.
DC iris lens voltage data (255 at 5 V).

V. IRIS LENS : Display between 0 and 255.
Video iris lens voltage data (255 at 5 V).

SHUTTER SPEED : Display between 0 and 511.

Shutter Speed	Display	
	NTSC	PAL
1/50	—	0
1/60	0	—
1/100	26	—
1/120	—	44
1/250	72	81
1/500	107	116
1/1000	142	151
1/2000	177	186
1/4000	212	221
1/10000	258	268
1/100000	399	411

AGC Gain : Display between 0 and 255.

Gain	Display
0	0
+9 dB	127
+18 dB	256

NOTE: The super AGC value is not reflected.

W.BAL R-B Data :
W.BAL Mg-G Data :
Display between -256 and 256.
Average value measured on a vectorscope.
The data axis becomes the (R-B) axis and (Mg-G) axis.

R Gain :
B Gain :
Display between 128 and 2560.
The value obtained by each displayed value by 128 is the gain corresponding to the G gain (which is fixed at 2x).

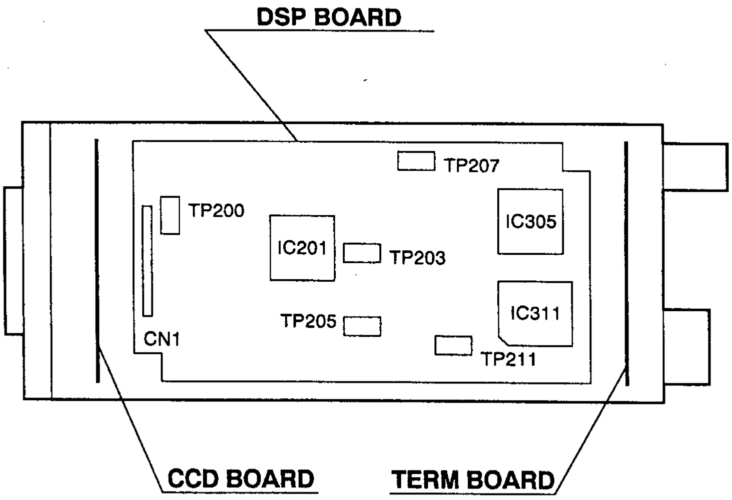
Color Temperature	Display	
	B	R
2020K	Approx. 1500	Approx. 160
3200K	Approx. 690	Approx. 260
7300K	Approx. 350	Approx. 410

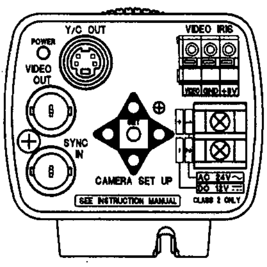
No.	Item	Measuring instruments & Input signals	Mode	Measuring point (◎) Adjustment parts (⇧) Adjustment level (☆)	Adjustment procedure

2.4 ADJUSTMENT OF REFFERENCE VOLTAGE

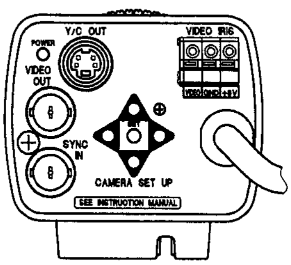
- After this adjustment, must be adjust all adjustment item.

1	5.7 V DC adjustment	• Digital voltmeter	• Adjustment mode	◎ TP211 [DSP] ⇧ 5.7V [adjustment mode] ☆ 5.7V	1) Set the adjustment menu on the monitor screen. 2) Shift the cursor ">" to point to the "5.7V" with ▲ or ▼ button. 3) Press the ◀ or ▶ button so than the digital voltmeter's level meets the specified value at the measuring point. 4) Adjust the other adjustment.


DSP BOARD
TP207
TP200
IC201
TP203
IC305
IC311
TP205
CN1
TP211
CCD BOARD
TERM BOARD


Y/C OUT
POWER
VIDEO OUT
VIDEO IRIS
SYNC IN
CAMERA SET UP
SEE INSTRUCTION MANUAL
AC 24V~
DC 12V
CLASS 2 ONLY

(TK-C1380U/E)

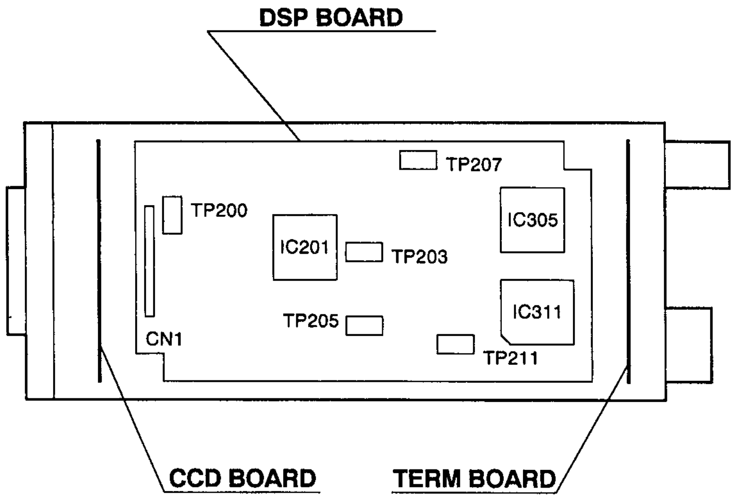

Y/C OUT
POWER
VIDEO OUT
VIDEO IRIS
SYNC IN
CAMERA SET UP
SEE INSTRUCTION MANUAL

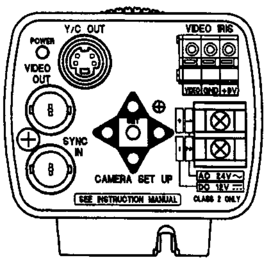
(TK-C1381EG)

No.	Item	Measuring instruments & Input signals	Mode	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure

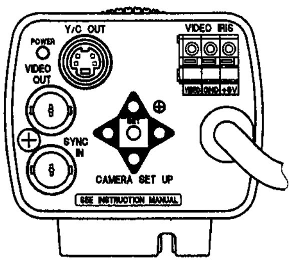
2.5 ADJUSTMENT OF SSG (INTERNAL SYNCHRONIZATION)

1	4 fsc adjustment	• Frequency counter	• Adjustment mode	◎ TP203 [DSP] Ⓣ FSC [adjustment mode] ☆ NTSC 14.31818MHz PAL 17.734475MHz	1) Disconnect the external video signal for gen-lock. 2) Set the adjustment menu on the monitor screen. 3) Shift the cursor ">" to point to the "FSC" with ▲ or ▼ button. 4) Press the ◀ or ▶ button so that the frequency counter's level becomes the specified value at the measuring point. 5) Do the fh adjustment.
2	fh adjustment	• Digital voltmeter	• Adjustment mode	◎ TP205 Ⓣ FH [adjustment mode] ☆ 3.5V DC	6) Disconnect the external video signal for gen-lock. 7) Set the adjustment menu on the monitor screen. 8) Shift the cursor ">" to point to the "FH" with ▲ or ▼ button. 9) Press the ◀ or ▶ buttons so that the digital voltmeter's level becomes the specified value at the measuring point.


DSP BOARD
TP207
TP200
IC305
IC201
TP203
IC311
TP205
CN1
TP211
CCD BOARD
TERM BOARD


Y/C OUT
POWER
VIDEO OUT
VIDEO IRIS
VIDEO GND +9V
SET
SYNC IN
CAMERA SET UP
AC 24V~
DC 12V
SEE INSTRUCTION MANUAL
CLASS 2 ONLY

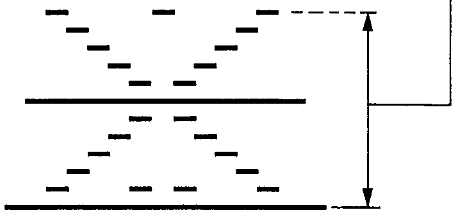
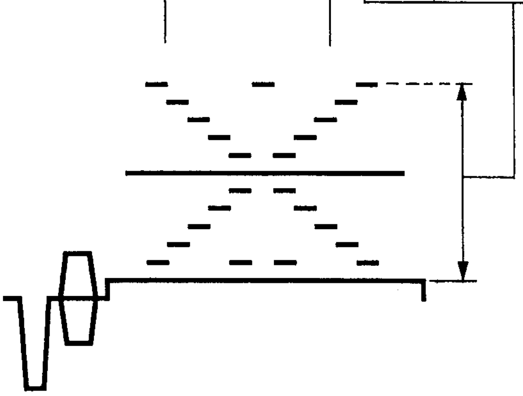
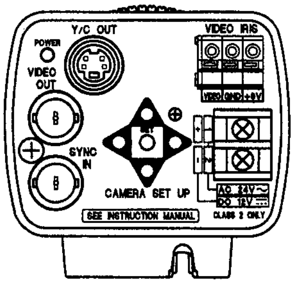
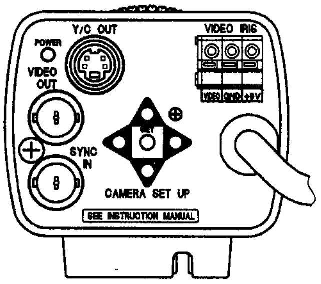
(TK-C1380U/E)

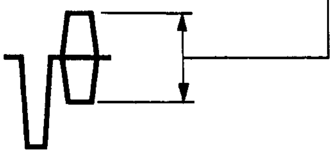
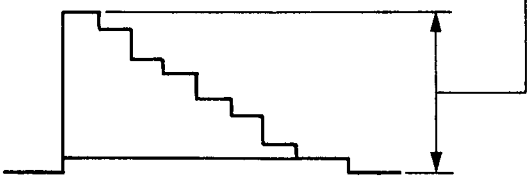

Y/C OUT
POWER
VIDEO OUT
VIDEO IRIS
VIDEO GND +9V
SET
SYNC IN
CAMERA SET UP
SEE INSTRUCTION MANUAL

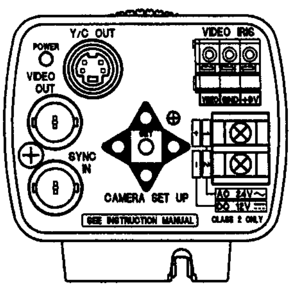
(TK-C1381EG)

No.	Item	Measuring instruments & Input signals	Mode	Measuring point (◎) Adjustment parts (⇧) Adjustment level (☆)	Adjustment procedure

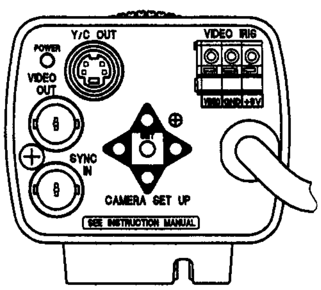
2.6 ADJUSTMENT OF VIDEO SIGNAL

1	Preparation	• Oscilloscope (H-rate, 10:1) Gray scale chart	• Adjustment mode	◎ TP200 [DSP] ⇧ Lens iris ☆ 1.5 Vp-p 	1) Shoot the gray scale chart in full-screen. 2) Adjust the white level at the centre of gray scale chart becomes the specified level at the measuring point. 3) After finishing the "2.6.1 preparation", so not disturb the lens iris setting until the "2.6.2 Y gain adjustment" is complete. **Note :** • The signal waveform output at TP200 of the DSP Board allows to seen all of the complementary color components, which are output from the CCD image sensor, superimposed on it. When observing the signal level on an oscilloscope, the waveform can be made easier to see by attaching a resistance of about 4.7Ω at the tip of the oscilloscope's probe.
2	Y gain adjustment	• Oscilloscope (H-rate, 10:1) Gray scale chart	• Adjustment mode	◎ VIDEO OUT [rear panel] ⇧ Y GAIN [adjustment mode] ☆ NTSC 714 mVp-p PAL 700 mVp-p   (TK-C1380U/E)  (TK-C1381EG)	1) Confirm the video signal level is 1.5 Vp-p at the TP200 on the DSP board. 2) Set the adjustment menu on the monitor screen. 3) Shift the cursor ">" to point to the "Y GAIN" with ▲ or ▼ button. 4) Press the ◀ or ▶ button so that the oscilloscope's level becomes the specified level at the measuring point. 5) Do the "2.8 ADJUSTMENT OF ALC".

No.	Item	Measuring instruments & Input signals	Mode	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
3	Burst level adjustment	• Oscilloscope (H-rate, 10:1) 	• Adjustment mode	◎ VIDEO OUT [rear panel] Ⓣ BURST [adjustment mode] ☆ NTSC 286 mVp-p PAL 300 mVp-p	1) Set the adjustment menu on the monitor screen. 2) Shift the cursor ">" to point to the "BURST" with ▲ or ▼ button. 3) Press the ◀ or ▶ button so that the oscilloscope's level becomes the specified level at the measuring point.
4	Chroma level adjustment	• Oscilloscope (H-rate, 10:1) Color bar chart 	• Adjustment mode	◎ TP200 [DSP] Ⓣ Lens iris ☆ 1.5 Vp-p	1) Shoot the color bars chart in full-screen. 2) Adjust the lens iris so that the white level becmes the specified level at the measuring point.
		• Vectorscope color bars chart	• Adjustment mode	◎ VIDEO OUT [rear panel] Ⓣ C GAIN [adjustment mode]	3) Shift the cursor ">" to point to the "C GAIN" with ▲ or ▼ button. 4) Press the ◀ or ▶ button so that the R spot be comes specified point (⊞ mark) on the vectorscope screen. 5) Do the "2.7 ADJUSTMENT OF WHITE BALANCE".


Y/C OUT
VIDEO IRIS
POWER
VIDEO OUT
SYNC IN
CAMERA SET UP
SEE INSTRUCTION MANUAL
AC 24V~
DC 12V
CLASS 2 ONLY

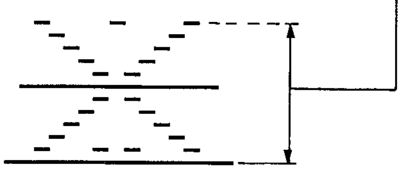
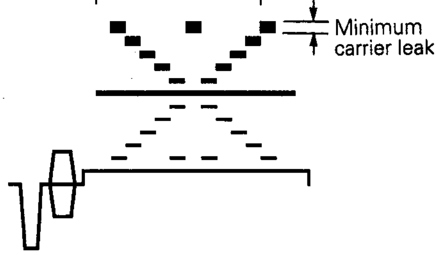
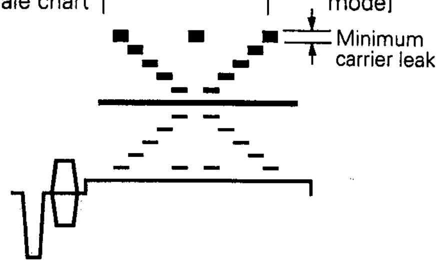
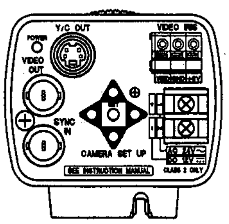
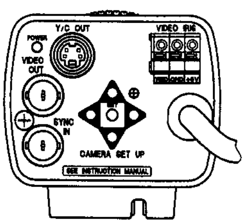
(TK-C1380U/E)


Y/C OUT
VIDEO IRIS
POWER
VIDEO OUT
SYNC IN
CAMERA SET UP
SEE INSTRUCTION MANUAL

(TK-C1381EG)

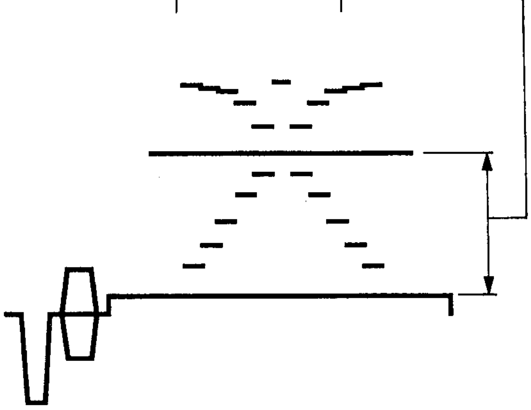
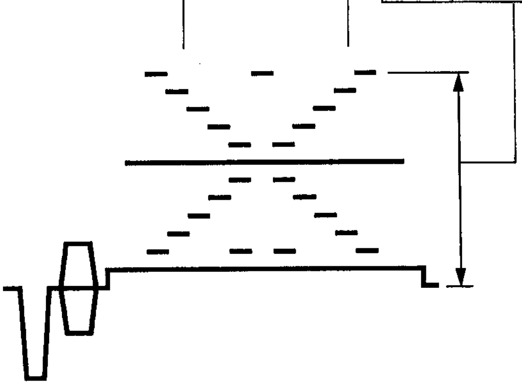
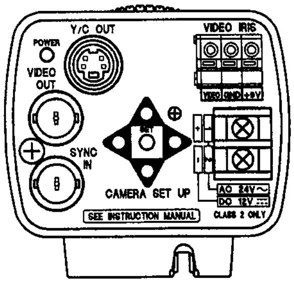
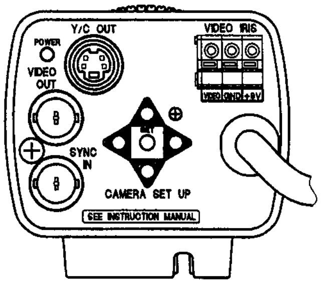
No.	Item	Measuring instruments & Input signals	Mode	Measuring point (◎) Adjustment parts (⇧) Adjustment level (☆)	Adjustment procedure

2.7 ADJUSTMENT OF WHITE BALANCE

1	Preparation	• Oscilloscope (H-rate, 10:1) Gray scale chart	• Adjustment mode	◎ TP200 [DSP] ⇧ Lens iris ☆ 1.5 Vp-p 	1) Shoot the gray scale chart in full-screen. 2) Adjust the lens iris so that the white level at the center of gray scale chart becomes the specified level at the measuring point. 3) After finishing the "2.7.1 preparation", do not disturb the lens iris setting until "2.7.4 white balance adjustment" is complete.
2	R gain adjustment	• Oscilloscope (H-rate, 10:1) Gray scale chart	• Adjustment mode	◎ VIDEO OUT [rear panel] ⇧ R GAIN [adjustment mode]  Minimum carrier leak	4) Shift the cursor ">" to point to the "R GAIN" with ▲ or ▼ button. 5) Press the ◀ or ▶ button so that the carrier leakage of white part at the center of the gray scale chart is minimized.
3	B gain adjustment	• Oscilloscope (H-rate, 10:1) Gray scale chart	• Adjustment mode	◎ VIDEO OUT [rear panel] ⇧ B GAIN [adjustment mode]  Minimum carrier leak	6) Shift the cursor ">" to point to the "B GAIN" with ▲ or ▼ button. 7) Press the ◀ or ▶ button so that the carrier leakage of white part at the center of the gray scale chart is minimized.
4	White balance adjustment	• Oscilloscope (H-rate, 10:1) Gray scale chart	• Adjustment mode	◎ VIDEO OUT [rear panel] ⇧ R GAIN [adjustment mode] ⇧ B GAIN [adjustment mode]  Y/C OUT VIDEO POWER VIDEO OUT SYNC IN CAMERA SET UP SEE INSTRUCTION MANUAL **(TK-C1380U/E)**  Y/C OUT VIDEO POWER VIDEO OUT SYNC IN CAMERA SET UP SEE INSTRUCTION MANUAL **(TK-C1381EG)**	8) Do the from 4 to 7 of this adjustment procedure untill carrier leakage of white is minimized.

No.	Item	Measuring instruments & Input signals	Mode	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure

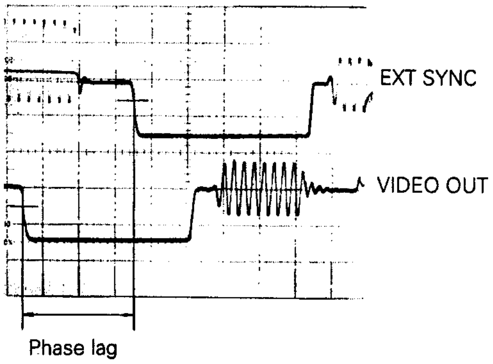
2.8 ADJUSTMENT OF ALC

1	Preparation	• Oscilloscope (H-rate, 10:1) Gray scale chart	• Adjustment mode	◎ VIDEO OUT [rear panel] Ⓣ Lens iris ☆ 0.5 to 0.7 Vp-p at cross point level 	1) Shoot the gray scale chart in full-screen. 2) Adjust the lens iris so that the cross point level becomes around 0.5 to 0.7 Vp-p at the measuring point. 3) After finishing the "2.8.1 preparation", do not disturb the lens iris setting until "2.8.2 ALC adjustment" is complete.
2	ALC adjustment	• Oscilloscope (H-rate, 10:1) Gray scale chart	• Adjustment mode	◎ VIDEO OUT [rear panel] Ⓣ ALC LEVEL [adjustment mode] ☆ NTSC 714 mVp-p PAL 700 mVp-p 	4) Shift the cursor ">" to point to the "ALC LEVEL" with ▲ or ▼ button. 5) Press the ◀ or ▶ button so that the oscilloscope's level becomes the specified level at the measuring point.  (TK-C1380U/E)  (TK-C1381EG)

No.	Item	Measuring instruments & Input signals	Mode	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure

2.9 ADJUSTMENT OF SSG (EXTERNAL SYNCHRONIZATION)

1	H phase adjustment	• Oscilloscope (H-rate, 10:1) dual-trace • External sync	• Adjustment mode	◎ VIDEO OUT [rear panel] ◎ SYCN IN [rear panel] Ⓣ H PHASE [adjustment mode]	1) Connect the external video signal to the "SYNC IN" terminal. 2) Shift the cursor ">" to point to the "H PHASE" with ▲ or ▼ button. 3) Observe the two inputs simultaneously on the oscilloscope and compare thior phase. 4) Press the ◀ or ▶ button so that the thier phase is coincide.

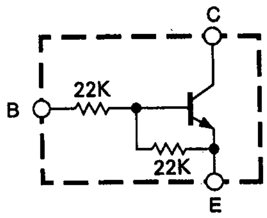


SECTION 3
CHARTS AND DIAGRAMS

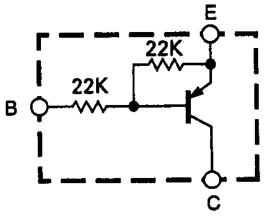
■ SCHEMATIC DIAGRAM NOTES

- Schematic safety precaution
  ⚠ Parts are safety related parts.
  When replacing them, be sure to use the specified parts.
- Voltage measurements.
  Voltage: Measured with digital voltmeter in DC range; iris closed.
- Terminal logic
  Top bar of terminal name show input or output logic. Top bar shows, the control circuit become active at negative (low) logic input for example.
- Digital transistors

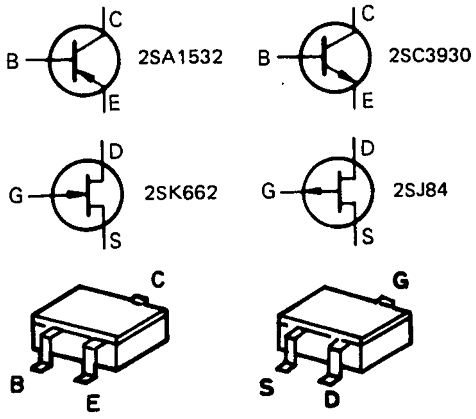
DTC ☐☐☐



DTA ☐☐☐



- Transistors and F.E.T.s are:

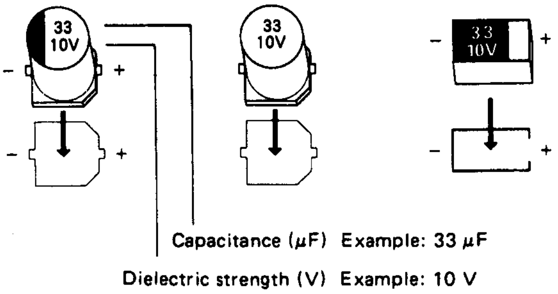


- Definistion of the (A) and the (B) or circuit boards diagrams
  (A) : Side on which discrete parts are assembled
  (B) : Side on which only chip parts are assembled.

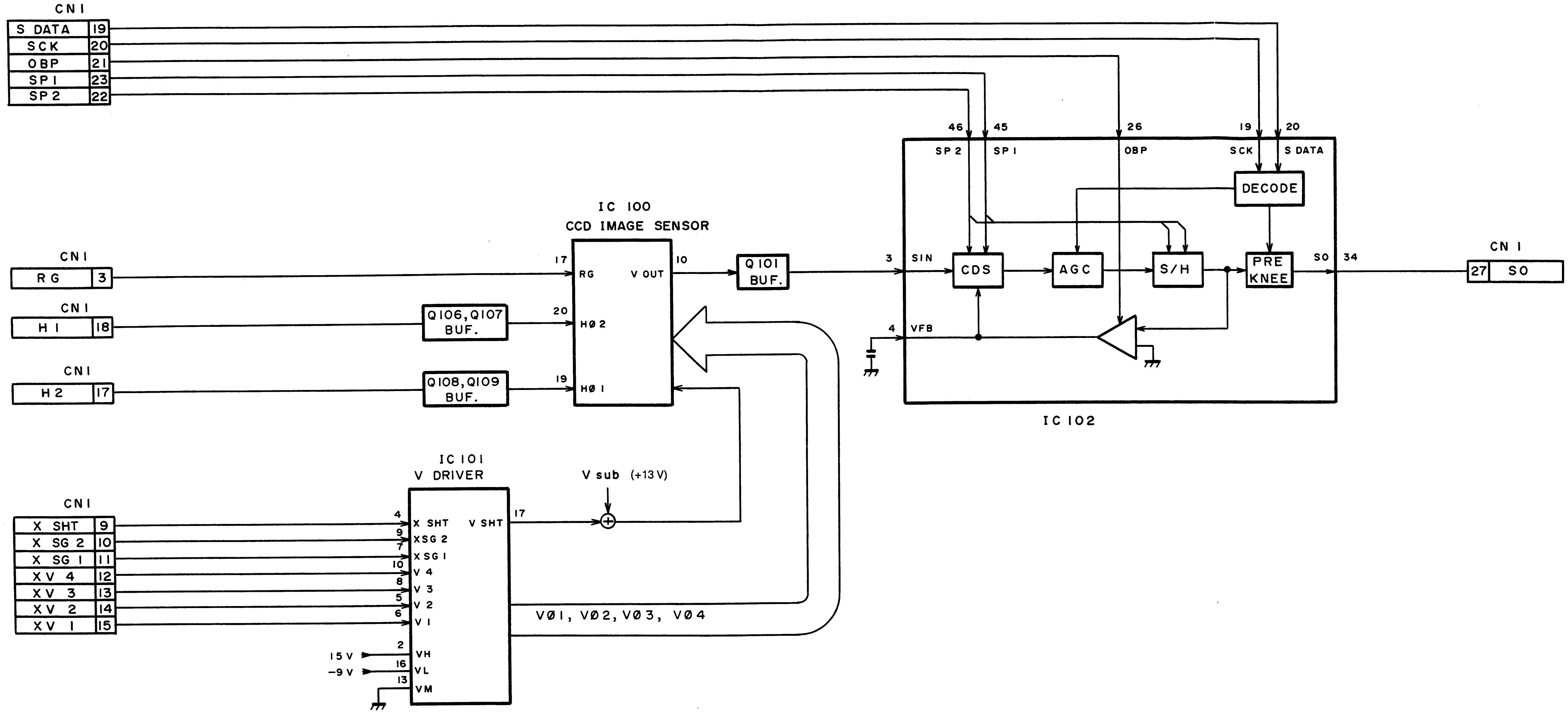
■ REPLACING SUBMINIATURE "CHIP" PARTS

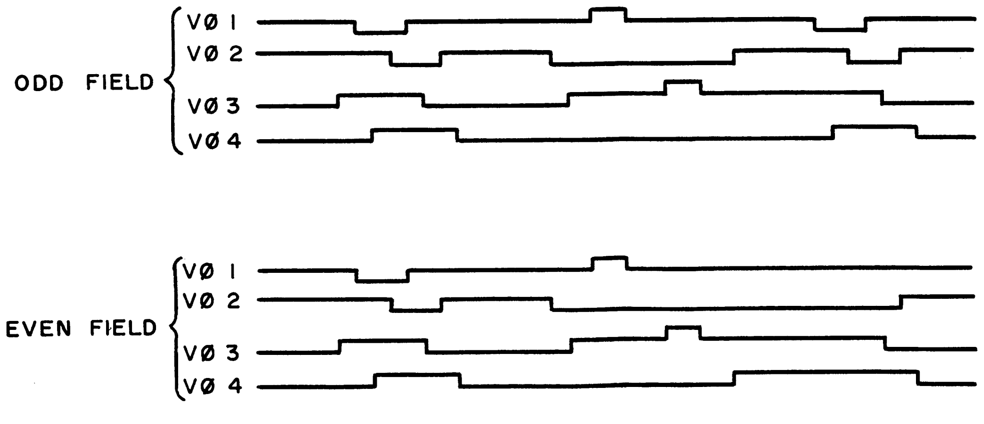
- Some resistors, shorting jumpers (0 Ω resistance), ceramic capacitors, transistors, and diodes are chip parts. These chip parts cannot be reused after they are once removed.
- Chip resistors used in some circuits are of high precision type having little error in resistance.
  To demonstrate the full capacity of this camera head, place an order for proper parts referring to the diagrams and parts lists in the sections 5.
- Soldering cautions:
  1) Do not apply heat for more than 3 seconds.
  2) Avoid using a rubbing stroke when soldering.
  3) Discard removed chips; do not reuse them.
  4) Supplementary cementing is not required.
  5) Use care not to scratch or otherwise damage the chips.
- Polarities of chip electrolytic capacitors and chip tanntalum capacitors used in this model are as illustrated below.
  Polarties indicated by silk-screen printing on circuit boards are also shown below. When replacing such parts, make sure of polarities.

- Electrolytic capacitor
- Non-polarized electrolytic capacitor
- Tantalum capacitor

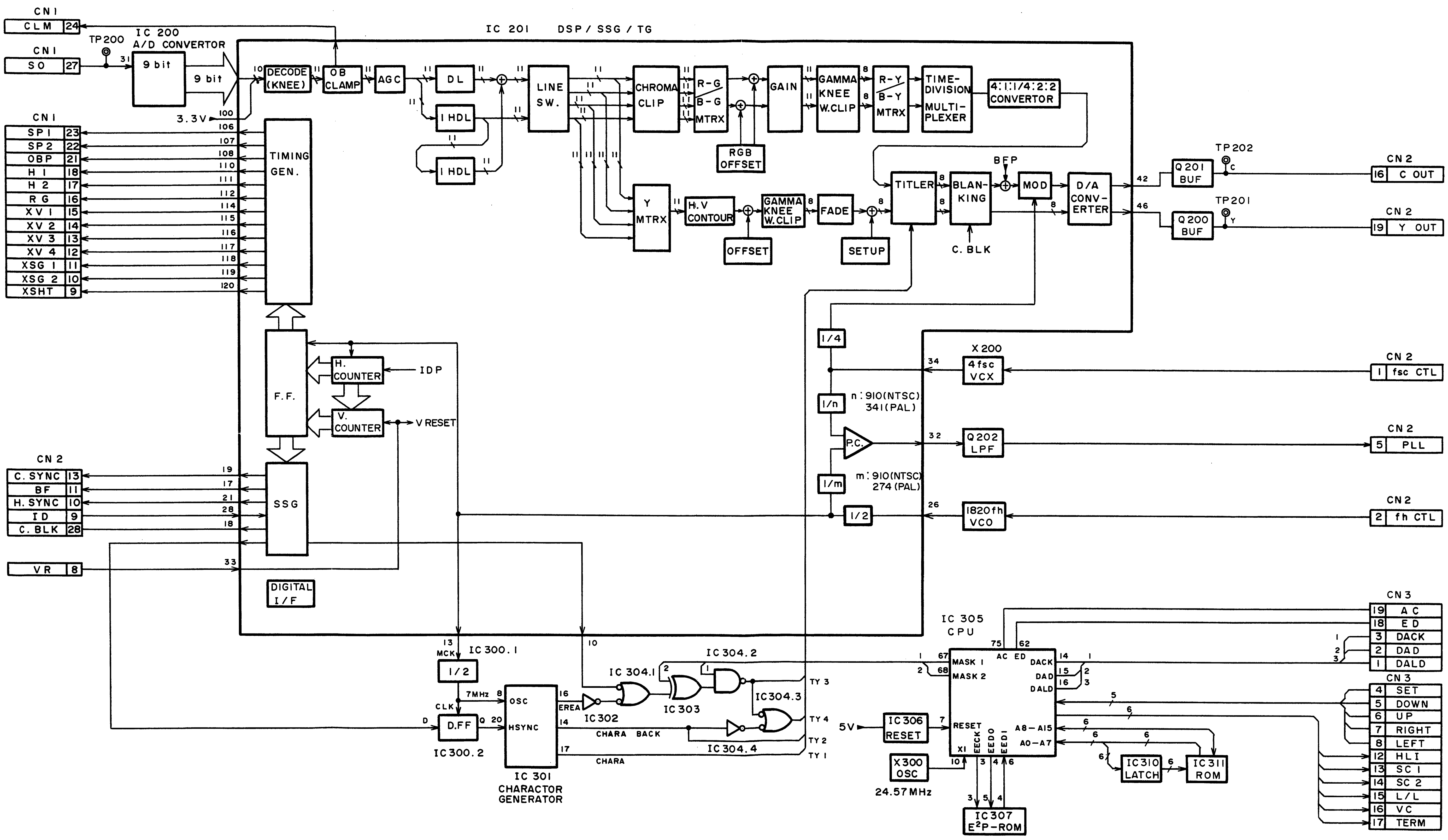

33
10V
-
+
-
+
33
10V
33
10V
-
+
-
+
Capacitance (µF) Example: 33 µF
Dielectric strength (V) Example: 10 V

3.1 CCD BOARD BLOCK DIAGRAM

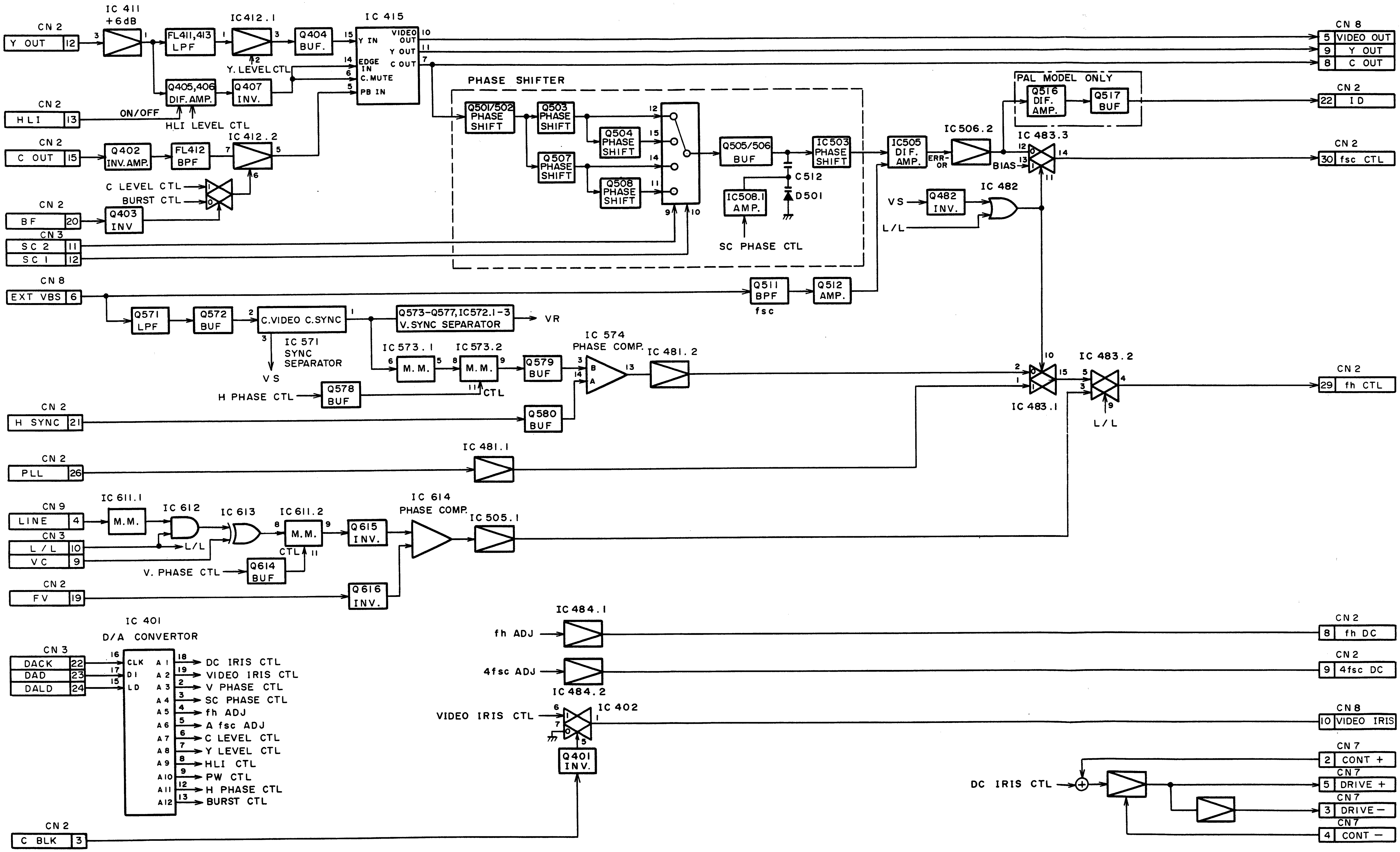

CN1
S DATA 19
SCK 20
OBP 21
SP1 23
SP2 22
46 SP2
45 SP1
26 OBP
19 SCK
20 S DATA
DECODE
IC 100
CCD IMAGE SENSOR
CN1
RG 3
17 RG
V OUT 10
Q101 BUF.
3 SIN
CDS
AGC
S/H
PRE KNEE
SO 34
CN1
27 SO
CN1
H1 18
Q106,Q107 BUF.
20 HØ2
4 VFB
CN1
H2 17
Q108,Q109 BUF.
19 HØ1
IC 102
IC 101
V DRIVER
V sub (+13 V)
CN1
X SHT 9
X SG 2 10
X SG 1 11
XV 4 12
XV 3 13
XV 2 14
XV 1 15
4 X SHT
9 XSG 2
7 XSG 1
10 V4
8 V3
5 V2
6 V1
V SHT 17
VØ1, VØ2, VØ3, VØ4
15 V
-9 V
2 VH
16 VL
13 VM


ODD FIELD
VØ1
VØ2
VØ3
VØ4
EVEN FIELD
VØ1
VØ2
VØ3
VØ4

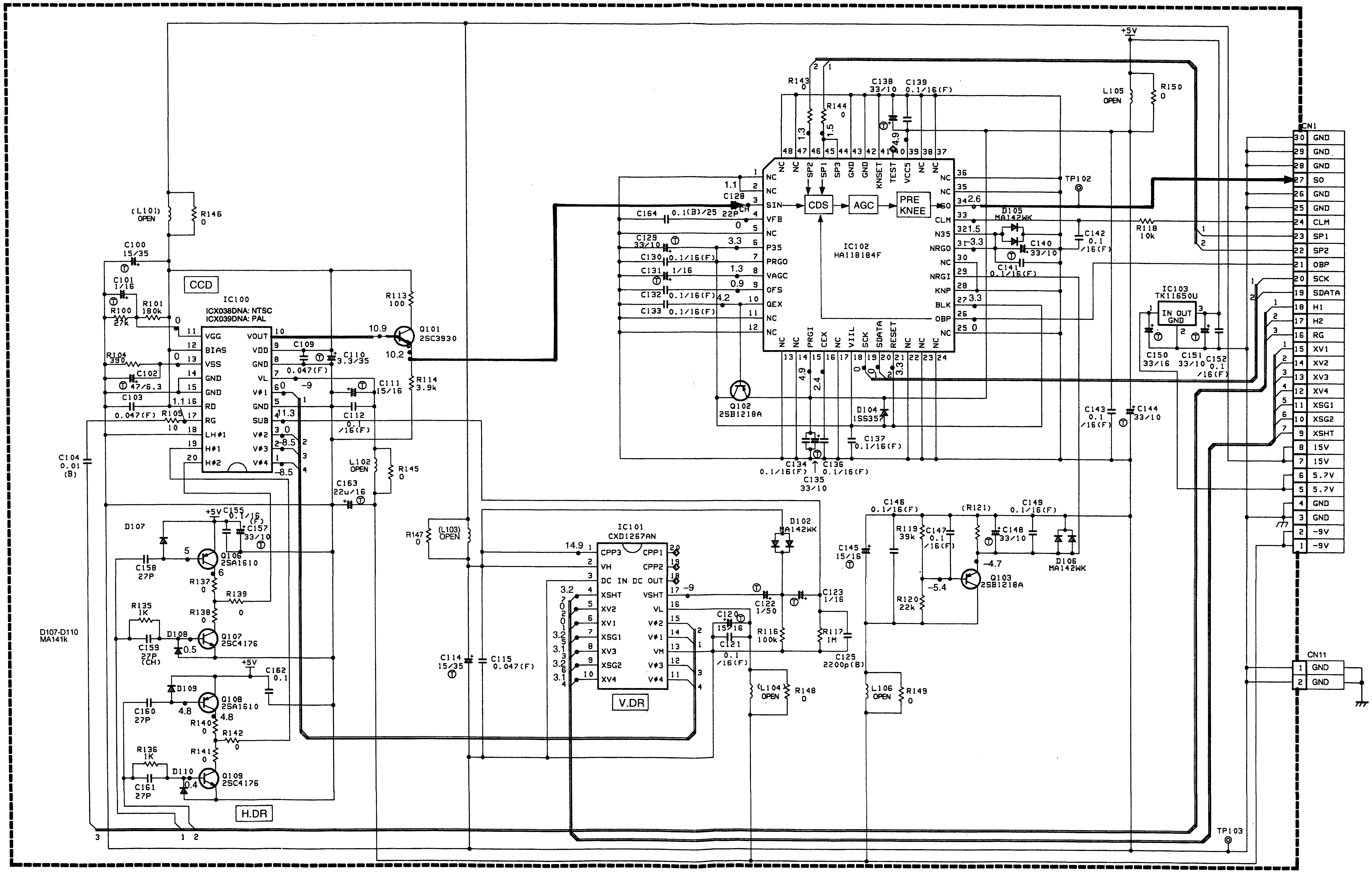
3.2 DSP BOARD BLOCK DIAGRAM


CN1 CLM 24
CN1 SO 27
TP200
IC 200 A/D CONVERTOR
9 bit
IC 201 DSP / SSG / TG
DECODE (KNEE)
OB CLAMP
AGC
DL
1 HDL
1 HDL
LINE SW.
CHROMA CLIP
R-G B-G MTRX
RGB OFFSET
GAIN
GAMMA KNEE W.CLIP
R-Y B-Y MTRX
TIME-DIVISION MULTI-PLEXER
4:1:1/4:2:2 CONVERTOR
Y MTRX
H.V CONTOUR
OFFSET
GAMMA KNEE W.CLIP
FADE
SETUP
TITLER
BLAN-KING
C. BLK
BFP
MOD
D/A CONV-ERTER
TP202
Q201 BUF
CN2 16 C OUT
TP201
Q200 BUF
CN2 19 Y OUT
3.3V
CN1 SP1 23
SP2 22
OBP 21
H1 18
H2 17
RG 16
XV1 15
XV2 14
XV3 13
XV4 12
XSG 1 11
XSG 2 10
XSHT 9
TIMING GEN.
F.F.
H. COUNTER
IDP
V. COUNTER
V RESET
SSG
DIGITAL I/F
CN2 C. SYNC 13
BF 11
H. SYNC 10
ID 9
C. BLK 28
VR 8
1/4
X200 4fsc VCX
CN2 1 fsc CTL
1/n
n: 910(NTSC) 341(PAL)
P.C.
Q202 LPF
CN2 5 PLL
1/m
m: 910(NTSC) 274 (PAL)
1/2
1820fh VCO
CN2 2 fh CTL
MCK
IC 300.1
1/2
7MHz
CLK
D.FF
IC 300.2
OSC
HSYNC
EREA
IC 301 CHARACTOR GENERATOR
IC 302
IC 303
IC 304.1
IC 304.2
IC 304.3
IC 304.4
CHARA BACK
CHARA
TY 3
TY 4
TY 2
TY 1
IC 305 CPU
MASK 1
MASK 2
AC
ED
DACK
DAD
DALD
RESET
XI
EECK
EEDO
EEDI
A8-A15
A0-A7
5V
IC306 RESET
X300 OSC
24.57MHz
IC307 E²P-ROM
IC310 LATCH
IC311 ROM
CN3 19 AC
18 ED
3 DACK
2 DAD
1 DALD
CN3 4 SET
5 DOWN
6 UP
7 RIGHT
8 LEFT
12 HL1
13 SC1
14 SC2
15 L/L
16 VC
17 TERM

3.3 GEN BOARD BLOCK DIAGRAM


CN 2
Y OUT 12
HLI 13
C OUT 15
BF 20
CN 3
SC 2 11
SC 1 12
CN 8
EXT VBS 6
H SYNC 21
PLL 26
CN 9
LINE 4
L/L 10
VC 9
FV 19
DACK 22
DAD 23
DALD 24
C BLK 3
IC 411 +6dB
FL411,413 LPF
IC412.1
Q404 BUF.
IC 415
Y IN
VIDEO OUT
Y OUT
C OUT
EDGE IN
C.MUTE
PB IN
Y. LEVEL CTL
Q405,406 DIF. AMP.
Q407 INV.
ON/OFF
HLI LEVEL CTL
Q402 INV. AMP.
FL412 BPF
IC 412.2
C LEVEL CTL
BURST CTL
Q403 INV
PHASE SHIFTER
Q501/502 PHASE SHIFT
Q503 PHASE SHIFT
Q504 PHASE SHIFT
Q507 PHASE SHIFT
Q508 PHASE SHIFT
Q505/506 BUF
C512
D501
IC503 PHASE SHIFT
IC508.1 AMP.
SC PHASE CTL
PAL MODEL ONLY
Q516 DIF. AMP.
Q517 BUF
IC505 DIF. AMP.
ERR-OR
IC 506.2
IC 483.3
BIAS
VS
Q482 INV.
IC 482
L/L
Q511 BPF
fsc
Q512 AMP.
Q571 LPF
Q572 BUF
C.VIDEO C.SYNC
IC 571 SYNC SEPARATOR
VS
Q573–Q577, IC572.1–3 V. SYNC SEPARATOR
VR
IC 573.1
M.M.
IC 573.2
M.M.
CTL
Q579 BUF
IC 574 PHASE COMP.
IC 481.2
H PHASE CTL
Q578 BUF
Q580 BUF
IC 483.1
IC 483.2
L/L
IC 481.1
IC 611.1
M.M.
IC 612
IC 613
IC 611.2
M.M.
CTL
L/L
V. PHASE CTL
Q614 BUF
Q615 INV.
IC 614 PHASE COMP.
IC 505.1
Q616 INV.
IC 401 D/A CONVERTOR
CLK
DI
LD
A1 DC IRIS CTL
A2 VIDEO IRIS CTL
A3 V PHASE CTL
A4 SC PHASE CTL
A5 fh ADJ
A6 A fsc ADJ
A7 C LEVEL CTL
A8 Y LEVEL CTL
A9 HLI CTL
A10 PW CTL
A11 H PHASE CTL
A12 BURST CTL
IC484.1
fh ADJ
4fsc ADJ
IC484.2
VIDEO IRIS CTL
IC 402
Q401 INV.
DC IRIS CTL
CN 8
5 VIDEO OUT
9 Y OUT
8 C OUT
CN 2
22 ID
30 fsc CTL
29 fh CTL
8 fh DC
9 4fsc DC
CN 8
10 VIDEO IRIS
CN 7
2 CONT +
5 DRIVE +
3 DRIVE −
4 CONT −

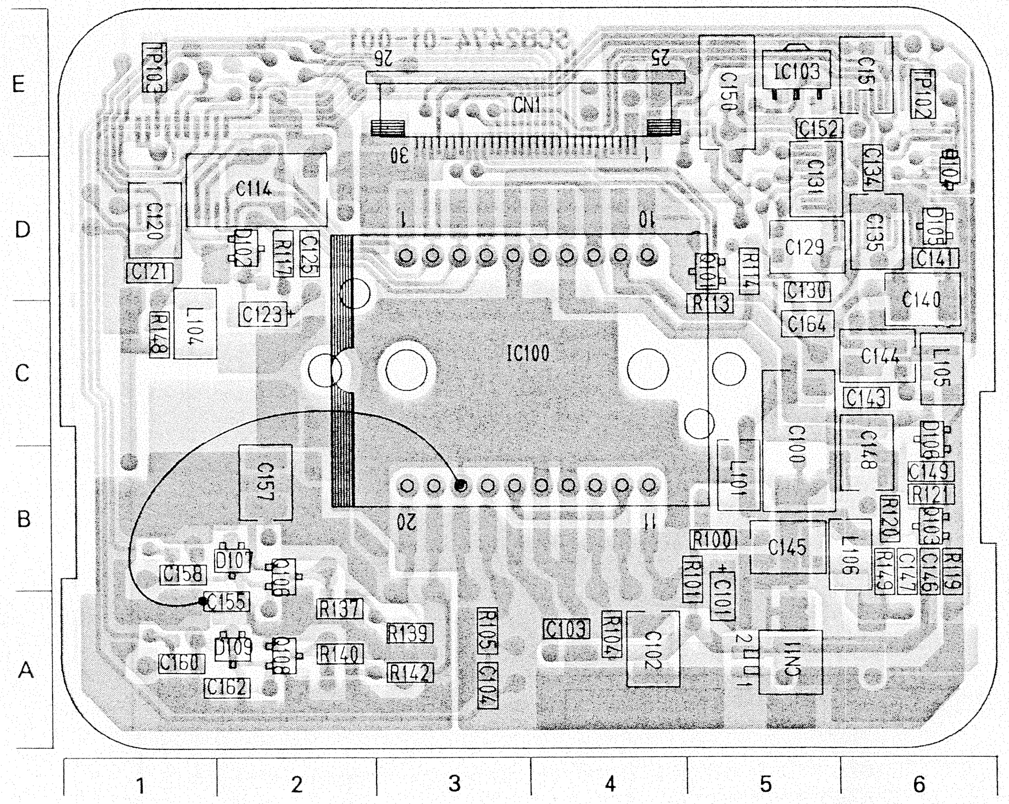
3.4 CCD BOARD SCHEMATIC DIAGRAM



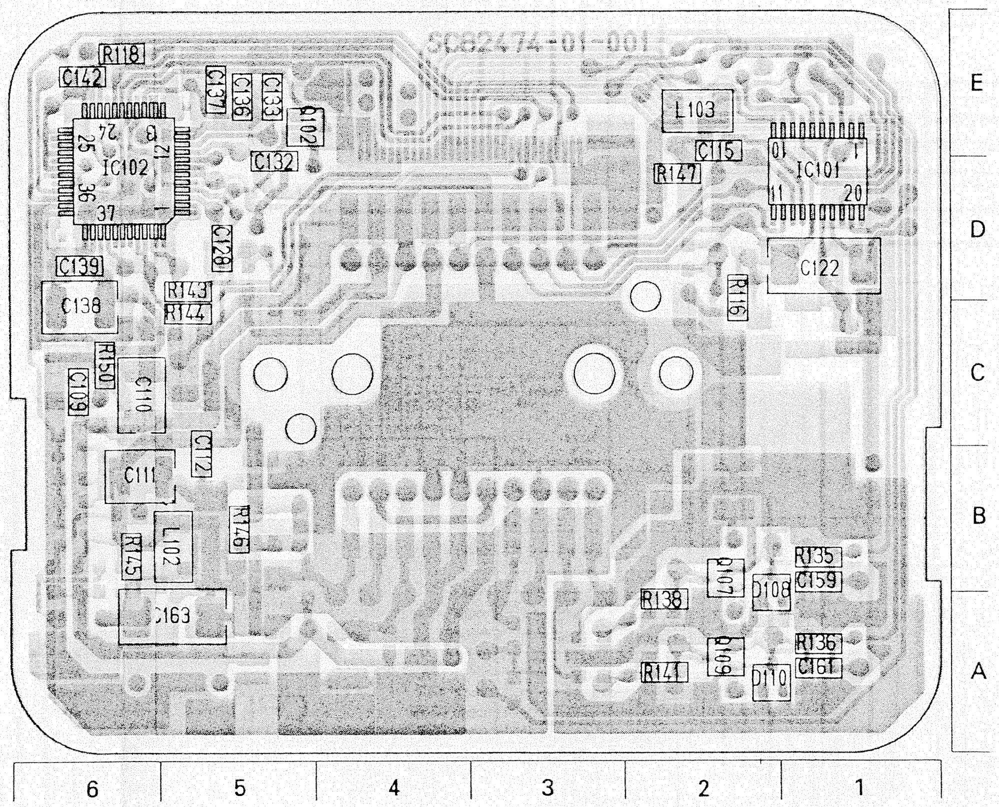
CCD
IC100
ICX038DNA: NTSC
ICX039DNA: PAL
VGG
BIAS
VSS
GND
RD
RG
LH#1
H#1
H#2
VOUT
VDD
VL
V#1
SUB
V#2
V#3
V#4
(L101) OPEN
R146 0
C100 15/35
C101 1/16
R100 27k
R101 180k
R104 390
C102 47/6.3
C103 0.047(F)
R105 10
C104 0.01 (B)
C109 0.047(F)
C110 3.3/35
C111 15/16
C112 0.1 /16(F)
R113 100
R114 3.9k
Q101 2SC3930
10.9
10.2
L102 OPEN
R145 0
C163 22u/16
H.DR
D107
D107-D110 MA141k
+5V
C155 0.1/16 (F)
C157 33/10
Q106 2SA1610
C158 27P
R137 0
R139 0
R135 1K
R138 0
D108
Q107 2SC4176
C159 27P (CH)
C162 0.1
D109
Q108 2SA1610
C160 27P
R140 0
R142 0
R136 1K
R141 0
D110
Q109 2SC4176
C161 27P
R147 0
(L103) OPEN
C114 15/35
C115 0.047(F)
IC101
CXD1267AN
CPP3
VH
DC IN
XSHT
XV2
XV1
XSG1
XV3
XSG2
XV4
CPP1
CPP2
DC OUT
VSHT
VL
V#2
V#1
VM
V#3
V#4
V.DR
D102 MA142WK
C122 1/50
C123 1/16
C120 15/16
C121 0.1 /16(F)
R116 100k
R117 1M
C125 2200p(B)
L104 OPEN
R148 0
L106 OPEN
R149 0
IC102
HA118184F
CDS
AGC
PRE KNEE
SIN
VFB
P35
PRGO
VAGC
OFS
QEX
NC
SP2
SP1
SP3
GND
KNSET
TEST
VCC5
SO
CLM
N35
NRGO
NRGI
KNP
BLK
OBP
PRGI
CEX
VIIL
SCK
SDATA
RESET
R143 0
R144 0
C138 33/10
C139 0.1/16(F)
C128 22P (CH)
C164 0.1(B)/25
C129 33/10
C130 0.1/16(F)
C131 1/16
C132 0.1/16(F)
C133 0.1/16(F)
Q102 2SB1218A
D104 1SS357
C134 0.1/16(F)
C135 33/10
C136 0.1/16(F)
C137 0.1/16(F)
TP102
D105 MA142WK
C140 33/10
C141 0.1/16(F)
C142 0.1 /16(F)
R118 10k
L105 OPEN
R150 0
+5V
IC103
TK11650U
IN OUT
GND
C150 33/16
C151 33/10
C152 0.1 /16(F)
C143 0.1 /16(F)
C144 33/10
C146 0.1/16(F)
(R121)
C149 0.1/16(F)
R119 39k
C145 15/16
C147 0.1 /16(F)
C148 33/10
D106 MA142WK
Q103 2SB1218A
R120 22k
-4.7
-5.4
CN1
GND
SO
CLM
SP1
SP2
OBP
SCK
SDATA
H1
H2
RG
XV1
XV2
XV3
XV4
XSG1
XSG2
XSHT
15V
5.7V
-9V
CN11
TP103

3.5 CCD CIRCUIT BOARD

— SIDE A —


E
D
C
B
A
1
2
3
4
5
6
SC82474-01-001
CN1
IC100
IC103
TP102
TP103
C114
C120
C121
L104
R148
C123
C157
C158
C155
D107
D109
C160
C162
R137
R139
R140
R142
R105
C104
C103
R104
C102
CN11
L101
C100
C145
L106
R100
R101
C101
C129
C130
C164
C140
C144
L105
C143
C148
C141
C135
C131
C134
C152
C150
C151
R113
R114
R117
C125
D102
D104
D105
D106
C149
R121
R120
R149
D103
C147
C146
R119

— SIDE B —


E
D
C
B
A
6
5
4
3
2
1
SC82474-01-001
R118
C142
C137
C136
C133
Q102
C132
IC102
C128
C139
C138
R143
R144
R150
C109
C110
C111
C112
L102
R145
R146
C163
L103
C115
R147
IC101
C122
R116
R135
C159
D107
D108
R138
R136
C161
Q109
D110
R141

● ADDRESS TABLE OF BOARD PARTS

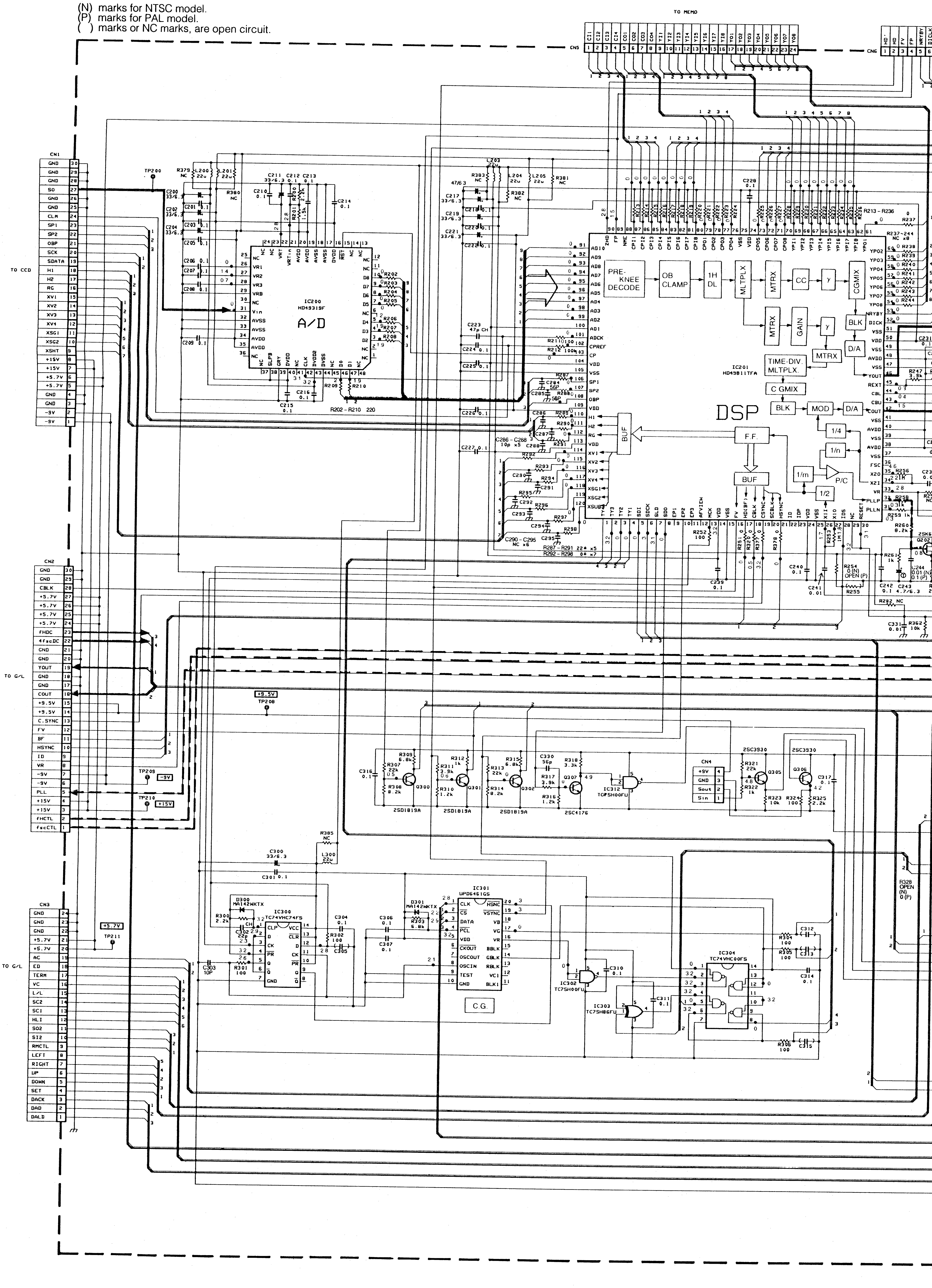
Each address may have an address error by one interval.

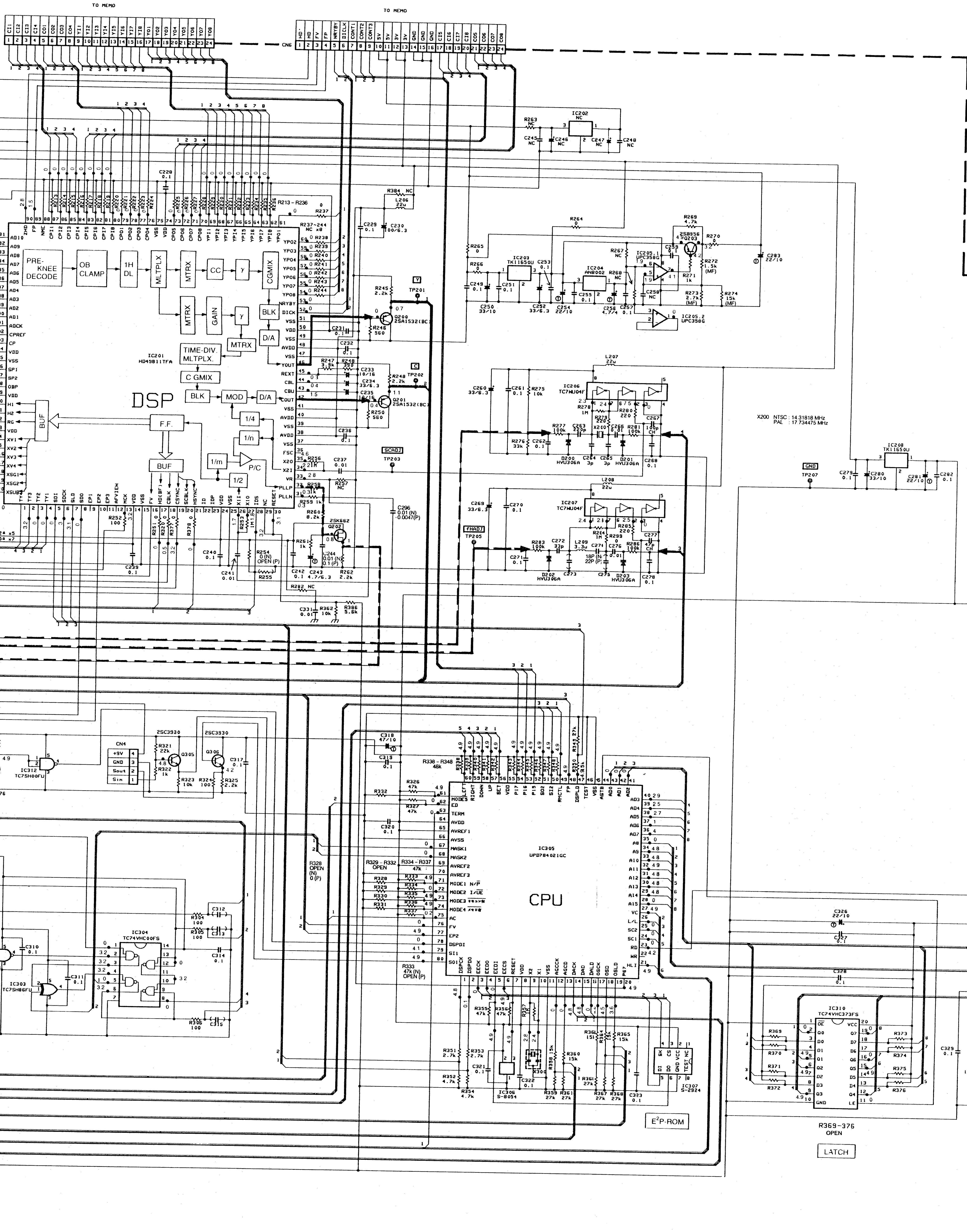
A–1C
Side — Y axis
X axis

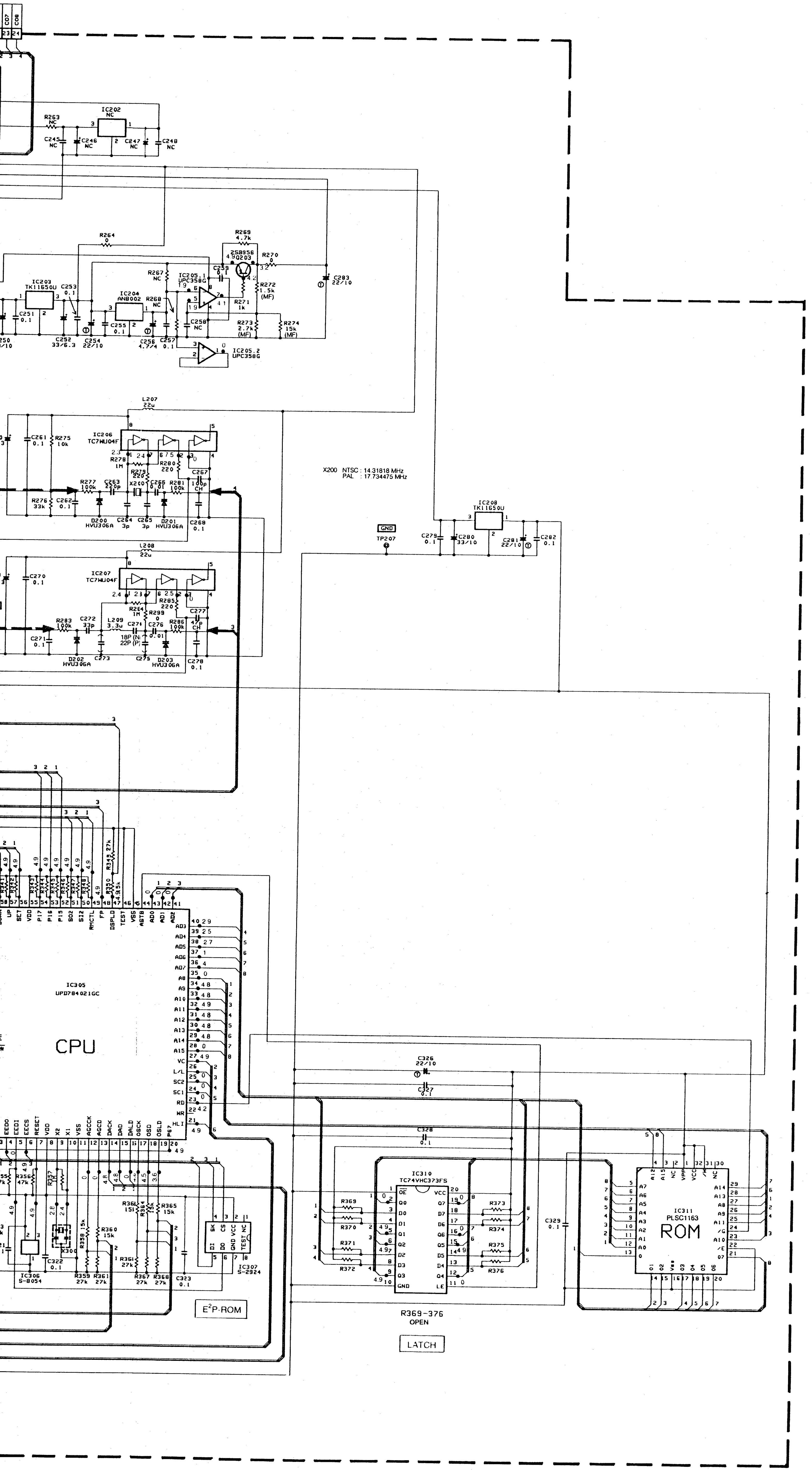
IC100	A- 3C	R104	A- 4A	R149	A- 6B	C133	B- 5E	C160	A- 1A
IC101	B- 1D	R105	A- 3A	R150	B- 6C	C134	A- 6D	C161	B- 1A
IC102	B- 6D	R113	A- 5D			C135	A- 6D	C162	A- 2A
IC103	A- 5E	R114	A- 5D	C100	A- 5C	C136	B- 5E	C163	B- 5A
		R116	B- 2D	C101	A- 5B	C137	B- 5E	C164	A- 5C
Q101	A- 5D	R117	A- 2D	C102	A- 4A	C138	B- 6D		
Q102	B- 4E	R118	B- 6E	C103	A- 4A	C139	B- 6D	L101	A- 5B
Q103	A- 6B	R119	A- 6B	C104	A- 3A	C140	A- 6D	L102	B- 5B
Q106	A- 2B	R120	A- 6B	C109	B- 6C	C141	A- 6D	L103	B- 2E
Q107	B- 2B	R121	A- 6B	C110	B- 6C	C142	B- 6E	L104	A- 1C
Q108	A- 2A	R135	B- 1B	C111	B- 6B	C143	A- 6C	L105	A- 6C
Q109	B- 2A	R136	B- 1A	C112	B- 5B	C144	A- 6C	L106	A- 5B
		R137	A- 2A	C114	A- 2D	C145	A- 5B		
D102	A- 2D	R138	B- 2B	C115	B- 2E	C146	A- 6B	TP102	A- 6E
D104	A- 6D	R139	A- 3A	C120	A- 1D	C147	A- 6B	TP103	A- 1E
D105	A- 6D	R140	A- 2A	C121	A- 1D	C148	A- 6B		
D106	A- 6C	R141	B- 2A	C122	B- 1D	C149	A- 6B	CN1	A- 3E
D107	A- 2B	R142	A- 3A	C123	A- 2C	C150	A- 5E	CN11	A- 5A
D108	B- 2B	R143	B- 5D	C125	A- 2D	C151	A- 6E		
D109	A- 2A	R144	B- 5D	C128	B- 5D	C152	A- 5E		
D110	B- 2A	R145	B- 6B	C129	A- 5D	C155	A- 2A		
		R146	B- 5B	C130	A- 5D	C157	A- 2B		
R100	A- 5B	R147	B- 2D	C131	A- 5D	C158	A- 1B		
R101	A- 4B	R148	A- 1C	C132	B- 5E	C159	B- 1B		

3.6 DSP BOARD SCHEMATIC DIAGRAM

(N) marks for NTSC model.
(P) marks for PAL model.
( ) marks or NC marks, are open circuit.


TO MEMO
CN5
CN6
CN1
TO CCD
CN2
TO G/L
CN3
TO G/L
CN4
TP200
TP208
TP209
TP210
TP211
+9.5V
-9V
+15V
+5.7V
IC200
HD49319F
A/D
IC201
HD49811TFA
DSP
PRE-KNEE DECODE
OB CLAMP
1H DL
MLTPLX
MTRX
CC
γ
CGMIX
GAIN
BLK
D/A
TIME-DIV. MLTPLX.
C GMIX
MOD
F.F.
BUF
1/4
1/n
1/m
1/2
P/C
IC300
TC74VHC74FS
IC301
UPD6461GS
C.G.
IC302
TC7SH00FU
IC303
TC7SH86FU
IC304
TC74VHC00FS
IC312
TC7SH00FU
Q300
Q301
Q302
Q305
Q306
Q307
2SD1819A
2SC4176
2SC3930
D300
MA142WKTX
D301
MA142WKTX
R202 - R210 220
R213 - R236
R237 - 244 NC x8
R287 - R291 22Ω x5
R292 - R298 0Ω x7
C286 - C288 10p x5
C290 - C295 NC x6

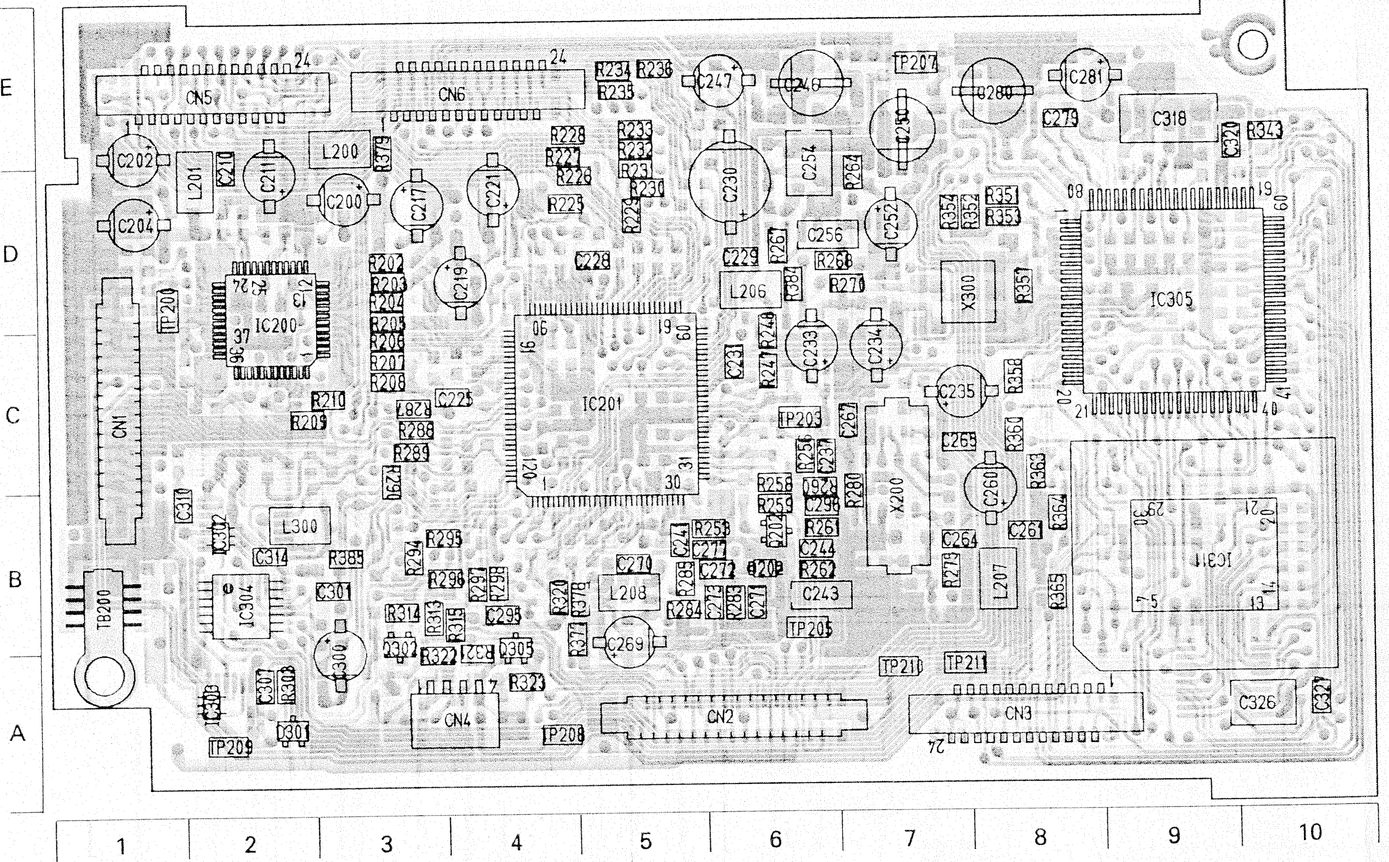

TO MEMO
CN6
IC201
HD49811TFA
PRE-KNEE DECODE
OB CLAMP
1H DL
MLTPLX
MTRX
CC
γ
CGMIX
GAIN
BLK
D/A
TIME-DIV. MLTPLX.
C GMIX
MOD
DSP
BUF
F.F.
1/4
1/n
1/m
P/C
1/2
R213 – R236
R237~244 NC x8
Q200 2SA1532(BC)
Q201 2SA1532(BC)
Q202 2SK662
TP201
TP202
TP203
TP205
SCADJ
FHADJ
IC202 NC
IC203 TK11650U
IC204 AN8002
IC205.1 UPC358G
IC205.2 UPC358G
Q203 2SB956
IC206 TC7WU04F
IC207 TC7WU04F
X200 NTSC : 14.31818 MHz
PAL : 17.734475 MHz
D200 HVU306A
D201 HVU306A
D202 HVU306A
D203 HVU306A
IC208 TK11650U
GND
TP207
CN4
+9V
GND
Sout
Sin
2SC3930
Q305
Q306
IC312 TC7SH00FU
IC303 TC7SH86FU
IC304 TC74VHC00FS
R338 – R348 48k
R329 – R332 OPEN
R334 – R337 47k
R328 OPEN (N) 0 (P)
R333 47k (N) OPEN (P)
IC305
UPD784021GC
CPU
IC306 S-8054
IC307 S-2924
X300
E²P-ROM
IC310
TC74VHC373FS
R369 – 376 OPEN
LATCH



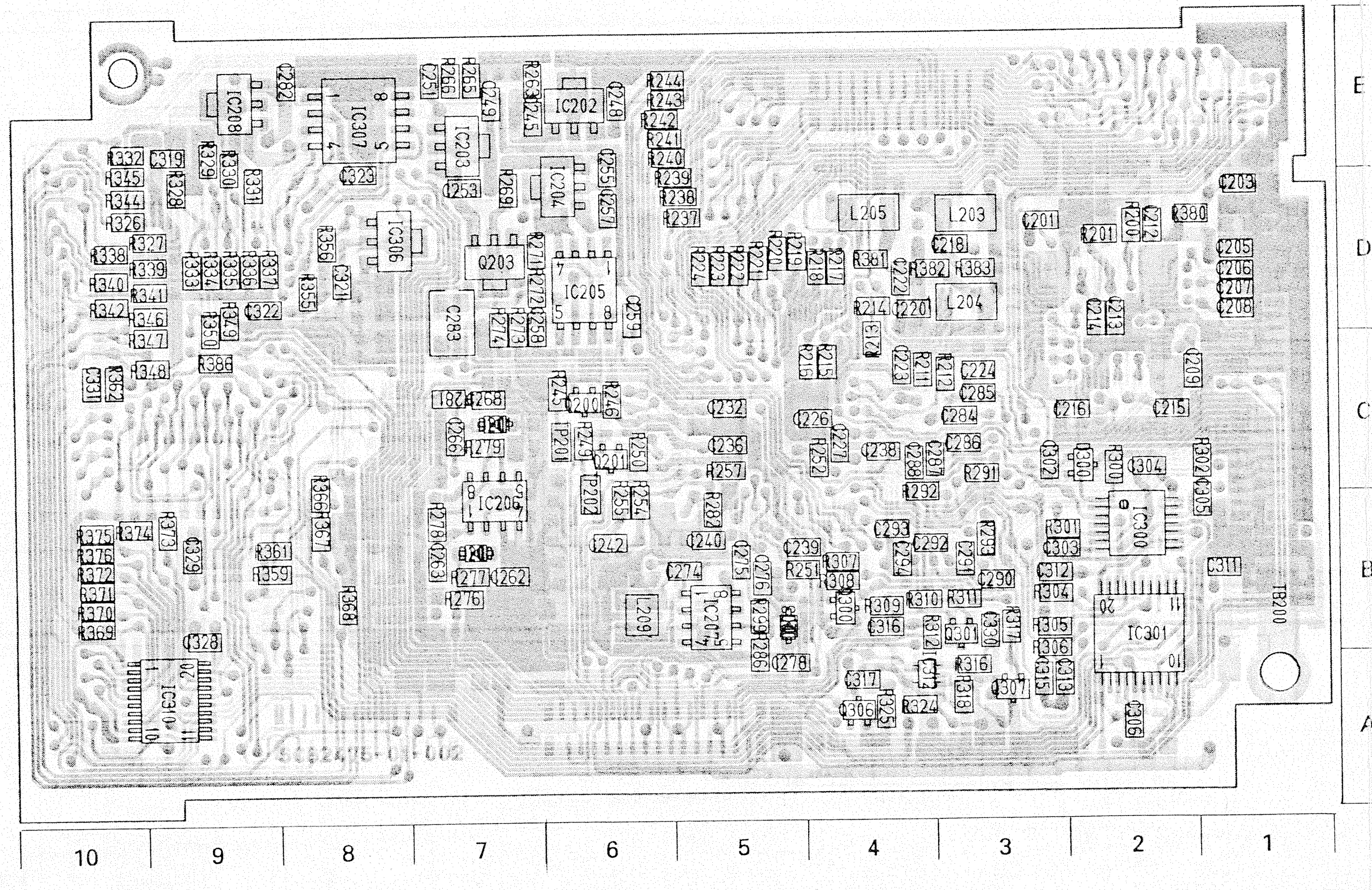
C07
C08
IC202
NC
R263
NC
C245
NC
C246
NC
C247
NC
C248
NC
R264
0
R269
4.7k
2SB956
4.90203
R270
0
C283
22/10
IC203
TK11650U
C253
0.1
C251
0.1
C252
33/6.3
IC204
AN8002
R268
NC
R267
NC
IC205.1
UPC358G
C259
0.1
R272
1.5k
(MF)
R271
1k
C258
NC
R273
2.7k
(MF)
R274
15k
(MF)
C254
22/10
C255
0.1
C256
4.7/4
C257
0.1
IC205.2
UPC358G
L207
22u
IC206
TC7WU04F
C261
0.1
R275
10k
R278
1M
R279
220
R280
220
C267
R277
100k
C263
220p
X200
C266
0.01
R281
100k
100p
CH
R276
33k
C262
0.1
D200
HVU306A
C264
3p
C265
3p
D201
HVU306A
C268
0.1
X200 NTSC : 14.31818 MHz
PAL : 17.734475 MHz
IC208
TK11650U
GND
TP207
C279
0.1
C280
33/10
C281
22/10
C282
0.1
L208
22u
IC207
TC7WU04F
C270
0.1
R284
1M
R299
0
R285
220
C277
47p
CH
R283
100k
C272
33p
L209
3.3u
C271
18P (N)
22P (P)
C276
0.01
R286
100k
C271
0.1
D202
HVU306A
C273
C275
D203
HVU306A
C278
0.1
R349
27k
R350
4.7k
IC305
UPD784021GC
CPU
AD3
AD4
AD5
AD6
AD7
A8
A9
A10
A11
A12
A13
A14
A15
VC
L/L
SC2
SC1
RD
WR
HLI
VDD
P17
P16
P15
SO2
SI2
RMCTL
FP
DSPLD
TEST
VSS
ASTB
AD0
AD1
AD2
EEDO
EEDI
EECS
RESET
VDD
X2
X1
VSS
AGCCK
AGCD
DACK
DAD
DALD
OSCK
OSD
OSLD
PG
R355
R356
47k
R357
X300
IC306
S-8054
C322
0.1
R358
15k
R359
27k
R360
15k
R361
27k
R362
15k
R363
27k
R364
15k
R365
15k
R367
27k
R368
27k
C323
0.1
IC307
S-2924
SK
CS
DI
DO
GND
VCC
TEST
NC
E²P-ROM
C326
22/10
C327
0.1
C328
0.1
IC310
TC74VHC373FS
OE
VCC
D0
Q0
D1
Q1
D2
Q2
D3
Q3
D4
Q4
D5
Q5
D6
Q6
D7
Q7
GND
LE
R369
R370
R371
R372
R373
R374
R375
R376
R369-376
OPEN
LATCH
C329
0.1
IC311
PLSC1163
ROM
A12
A15
NC
VPP
VCC
A7
A6
A5
A4
A3
A2
A1
A0
A14
A13
A8
A9
A11
/G
A10
/E
O7
O1
O2
Vss
O3
O4
O5
O6

3.7 DSP CIRCUIT BOARD

— SIDE A —



— SIDE B —



● **ADDRESS TABLE OF BOARD PARTS**

Each address may have an address error by one interval.

A–1C
Side — A
1 — X axis
C — Y axis

IC200	A- 2C
IC201	A- 5C
IC202	B- 6E
IC203	B- 7E
IC204	B- 6D
IC205	B- 6D
IC206	B- 7B
IC207	B- 5B
IC208	B- 9E
IC300	B- 2B
IC301	B- 2B
IC302	A- 2B
IC303	A- 2A
IC304	A- 2B
IC305	A- 9D
IC306	B- 7D
IC307	B- 8E
IC310	B- 9A
IC311	A- 9B
IC312	B- 4A
Q200	B- 6C
Q201	B- 6C
Q202	A- 6B
Q203	B- 7D
Q300	B- 4B
Q301	B- 3B
Q302	A- 3A
Q305	A- 4A
Q306	B- 4A
Q307	B- 3A
D200	B- 7B
D201	B- 7C
D202	A- 6B
D203	B- 5B
D300	B- 2C
D301	A- 2A
R200	B- 2D
R201	B- 2D
R202	A- 3D
R203	A- 3D
R204	A- 3D
R205	A- 3C
R206	A- 3C
R207	A- 3C
R208	A- 3C
R209	A- 2C
R210	A- 3C
R211	B- 4C
R212	B- 3C
R213	B- 4C
R214	B- 4D
R215	B- 4C
R216	B- 4C
R217	B- 4D
R218	B- 4D
R219	B- 4D
R220	B- 5D
R221	B- 5D
R222	B- 5D
R223	B- 5D
R224	B- 5D
R225	A- 4D
R226	A- 4D
R227	A- 4E
R228	A- 4E
R229	A- 5D
R230	A- 5D
R231	A- 5D
R232	A- 5E
R233	A- 5E
R234	A- 5E
R235	A- 5E
R236	A- 5E
R237	B- 5D
R238	B- 5D
R239	B- 5D
R240	B- 5E
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R242	B- 5E
R243	B- 5E
R244	B- 5E
R245	B- 6C
R246	B- 6C
R247	A- 6C
R248	A- 6C
R249	B- 6C
R250	B- 6C
R251	B- 4B
R252	B- 4C
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R256	A- 6C
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R259	A- 6B
R260	A- 6B
R261	A- 6B
R262	A- 6B
R263	B- 6E
R264	A- 7D
R265	B- 7E
R266	B- 7E
R267	A- 6D
R268	A- 6D
R269	B- 7D
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R272	B- 6D
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R274	B- 7C
R275	A- 7B
R276	B- 7B
R277	B- 7B
R278	B- 7B
R279	B- 7C
R280	A- 7B
R281	B- 7C
R282	B- 5B
R283	A- 6B
R284	A- 5B
R285	A- 5B
R286	B- 5A
R287	A- 3C
R288	A- 3C
R289	A- 3C
R290	A- 3C
R291	B- 3C
R292	B- 4B
R293	B- 3B
R294	A- 3B
R295	A- 3B
R296	A- 3B
R297	A- 4B
R298	A- 4B
R299	B- 5B
R300	B- 2C
R301	B- 2B
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R304	B- 3B
R305	B- 3B
R306	B- 3A
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R312	B- 4B
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R317	B- 3B
R318	B- 3A
R320	A- 4B
R321	A- 4A
R322	A- 3A
R323	A- 4A
R324	B- 4A
R325	B- 4A
R326	B- 10D
R327	B- 9D
R328	B- 9D
R329	B- 9E
R330	B- 9E
R331	B- 9D
R332	B- 10E
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R337	B- 8D
R338	B- 10D
R339	B- 9D
R340	B- 10D
R341	B- 9D
R342	B- 10D
R343	A- 10E
R344	B- 10D
R345	B- 10E
R346	B- 9D
R347	B- 9C
R348	B- 9C
R349	B- 9D
R350	B- 9C
R351	A- 8D
R352	A- 7D
R353	A- 8D
R354	A- 7D
R355	B- 8D
R356	B- 8D
R357	A- 8D
R358	A- 8C
R359	B- 8B
R360	A- 8C
R361	B- 8B
R362	B- 10C
R363	A- 8C
R364	A- 8B
R365	A- 8B
R366	B- 8C
R367	B- 8B
R368	B- 8B
R369	B- 10B
R370	B- 10B
R371	B- 10B
R372	B- 10B
R373	B- 9B
R374	B- 9B
R375	B- 10B
R376	B- 10B
R377	A- 4A
R378	A- 4B
R379	A- 3E
R380	B- 1D
R381	B- 4D
R382	B- 3D
R383	B- 3D
R384	A- 6D
R385	A- 3B
R386	B- 9C
C200	A- 3D
C201	B- 3D
C202	A- 1E
C203	B- 1D
C204	A- 1D
C205	B- 1D
C206	B- 1D
C207	B- 1D
C208	B- 1D
C209	B- 1C
C210	A- 2D
C211	A- 2D
C212	B- 2D
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C214	B- 2D
C215	B- 2C
C216	B- 2C
C217	A- 3D
C218	B- 3D
C219	A- 4D
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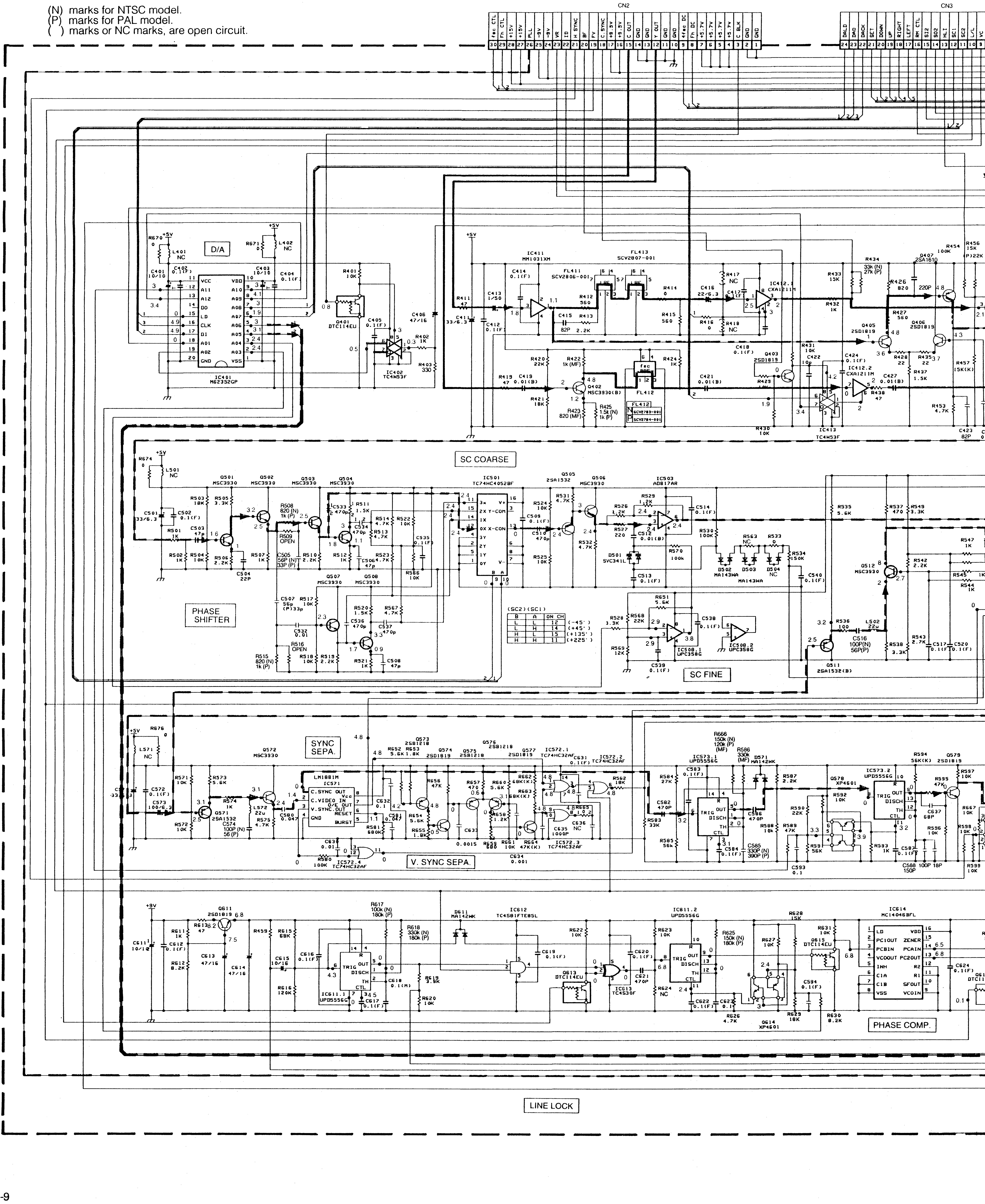
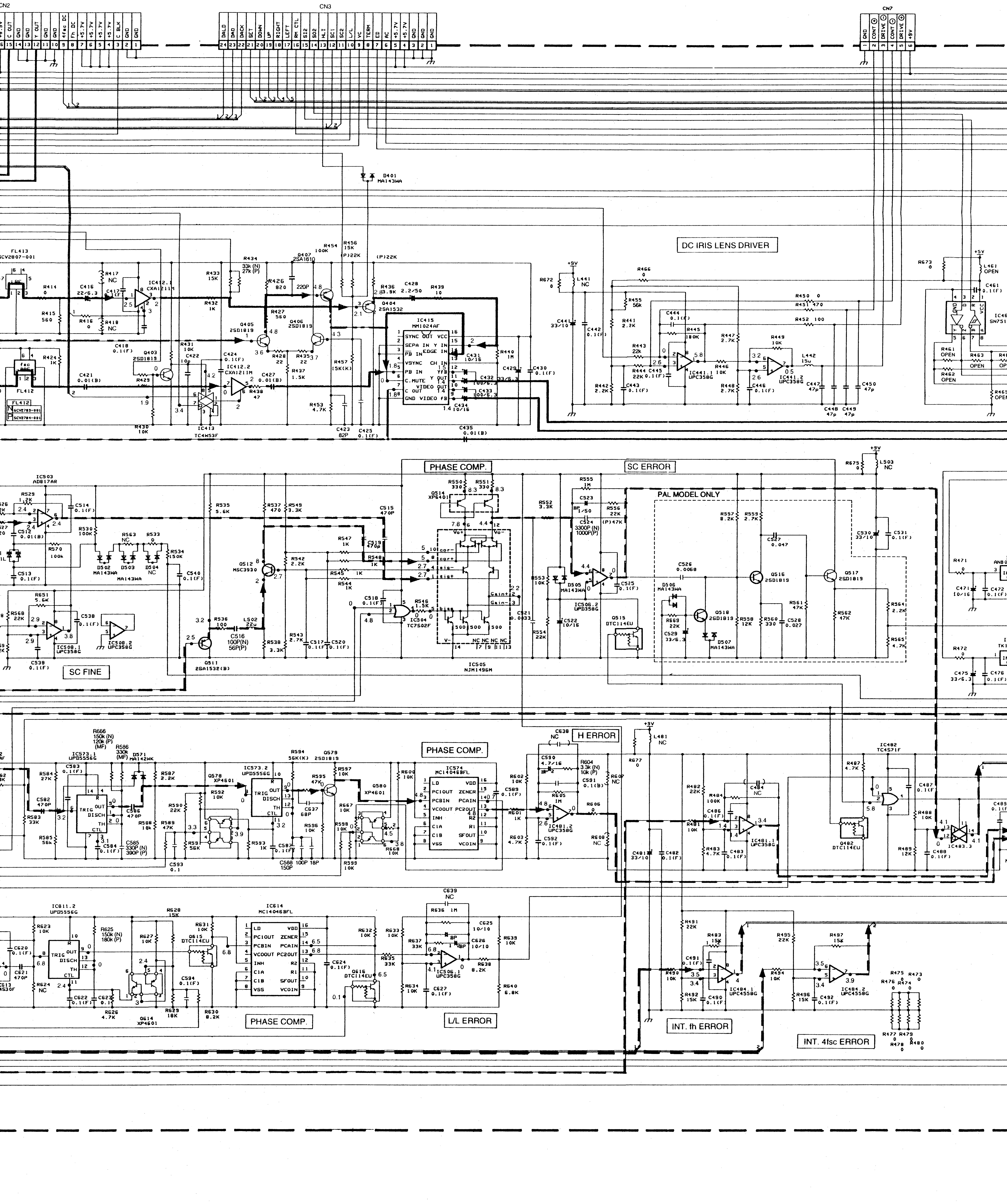
C221	A- 4D
C222	B- 4D
C223	B- 4C
C224	B- 3C
C225	A- 4C
C226	B- 4C
C227	B- 4C
C228	A- 5D
C229	A- 6D
C230	A- 6D
C231	A- 6C
C232	B- 5C
C233	A- 6C
C234	A- 7C
C235	A- 7C
C236	B- 5C
C237	A- 6C
C238	B- 4C
C239	B- 4B
C240	B- 5B
C241	A- 5B
C242	B- 6B
C243	A- 6B
C244	A- 6B
C245	B- 6E
C246	A- 6E
C247	A- 6E
C248	B- 6E
C249	B- 7E
C250	A- 7E
C251	B- 7E
C252	A- 7D
C253	B- 7D
C254	A- 6D
C255	B- 6E
C256	A- 6D
C257	B- 6D
C258	B- 6C
C259	B- 6D
C260	A- 7B
C261	A- 8B
C262	B- 7B
C263	B- 7B
C264	A- 7B
C265	A- 7C
C266	B- 7C
C267	A- 6C
C268	B- 7C
C269	A- 5A
C270	A- 5B
C271	A- 6B
C272	A- 5B
C273	A- 5B
C274	B- 5B
C275	B- 5B
C276	B- 5B
C277	A- 5B
C278	B- 4A
C279	A- 8E
C280	A- 8E
C281	A- 8E
C282	B- 8E
C283	B- 7D
C284	B- 3C
C285	B- 3C
C286	B- 3C
C287	B- 3C
C288	B- 4C
C290	B- 3B
C291	B- 3B
C292	B- 4B
C293	B- 4B
C294	B- 4B
C295	A- 4B
C296	A- 6B
C300	A- 3A
C301	A- 3B
C302	B- 3C
C303	B- 2B
C304	B- 2C
C305	B- 1B
C306	B- 2A
C307	A- 2A
C310	A- 1B
C311	B- 1B
C312	B- 3B
C313	B- 2A
C314	A- 2B
C315	B- 3A
C316	B- 4B
C317	B- 4A
C318	A- 9E
C319	B- 9E
C320	A- 9E
C321	B- 8D
C322	B- 8D
C323	B- 8D
C326	A- 10A
C327	A- 10A
C328	B- 9B
C329	B- 9B
C330	B- 3B
C331	B- 10C
L200	A- 3E
L201	A- 2D
L203	B- 3D
L204	B- 3D
L205	B- 4D
L206	A- 6D
L207	A- 8B
L208	A- 5B
L209	B- 6B
L300	A- 2B
TP200	A- 1D
TP201	B- 6C
TP202	B- 6B
TP203	A- 6C
TP205	A- 6B
TP207	A- 7E
TP208	A- 4A
TP209	A- 2A
TP210	A- 7A
TP211	A- 7A
CN1	A- 1C
CN2	A- 6A
CN3	A- 8A
CN4	A- 4A
CN5	A- 2E
CN6	A- 4E
TB200	A- 1A
X200	A- 7B
X300	A- 7D

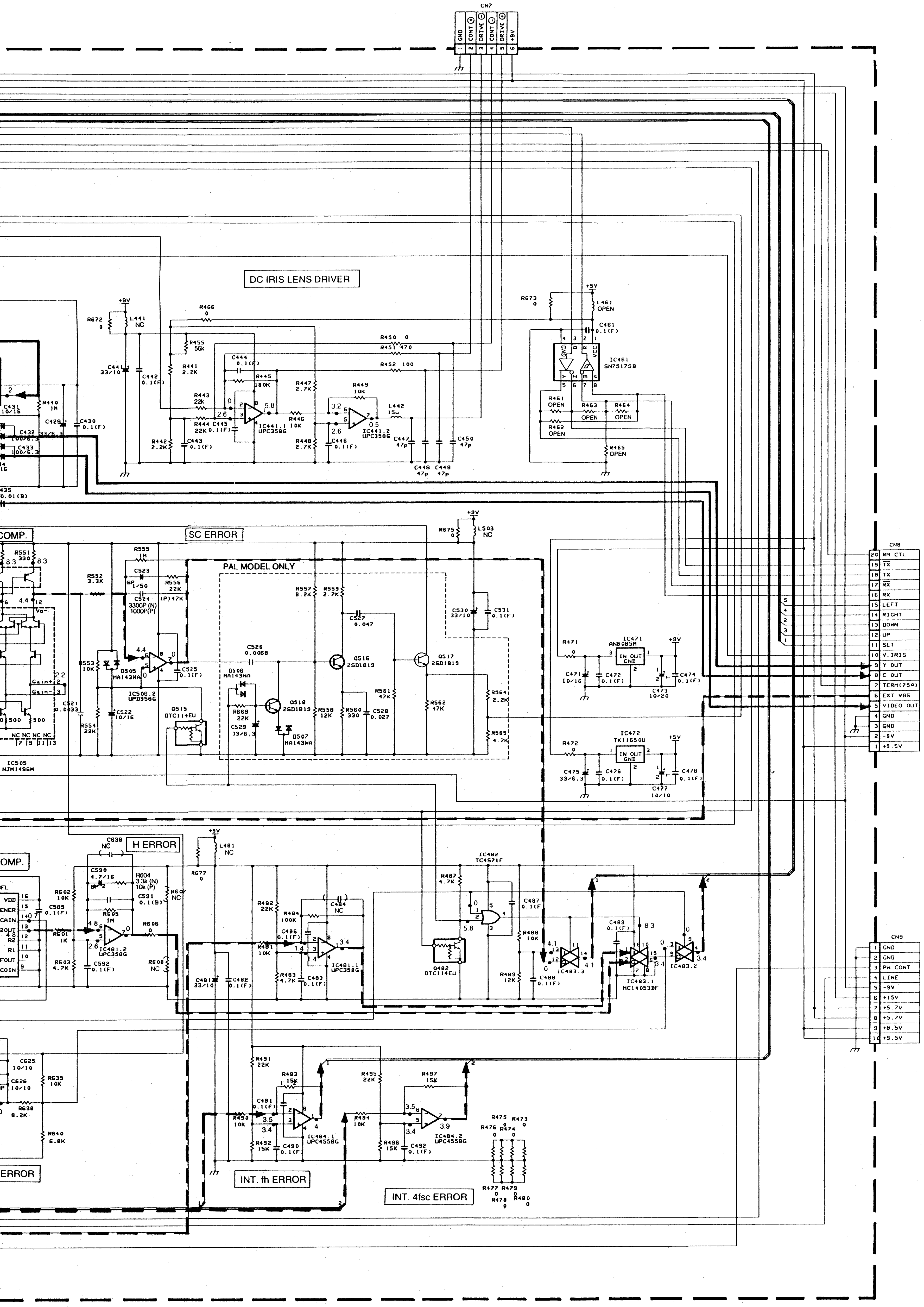
3.8 GEN BOARD SCHEMATIC DIAGRAM

(N) marks for NTSC model.
(P) marks for PAL model.
( ) marks or NC marks, are open circuit.



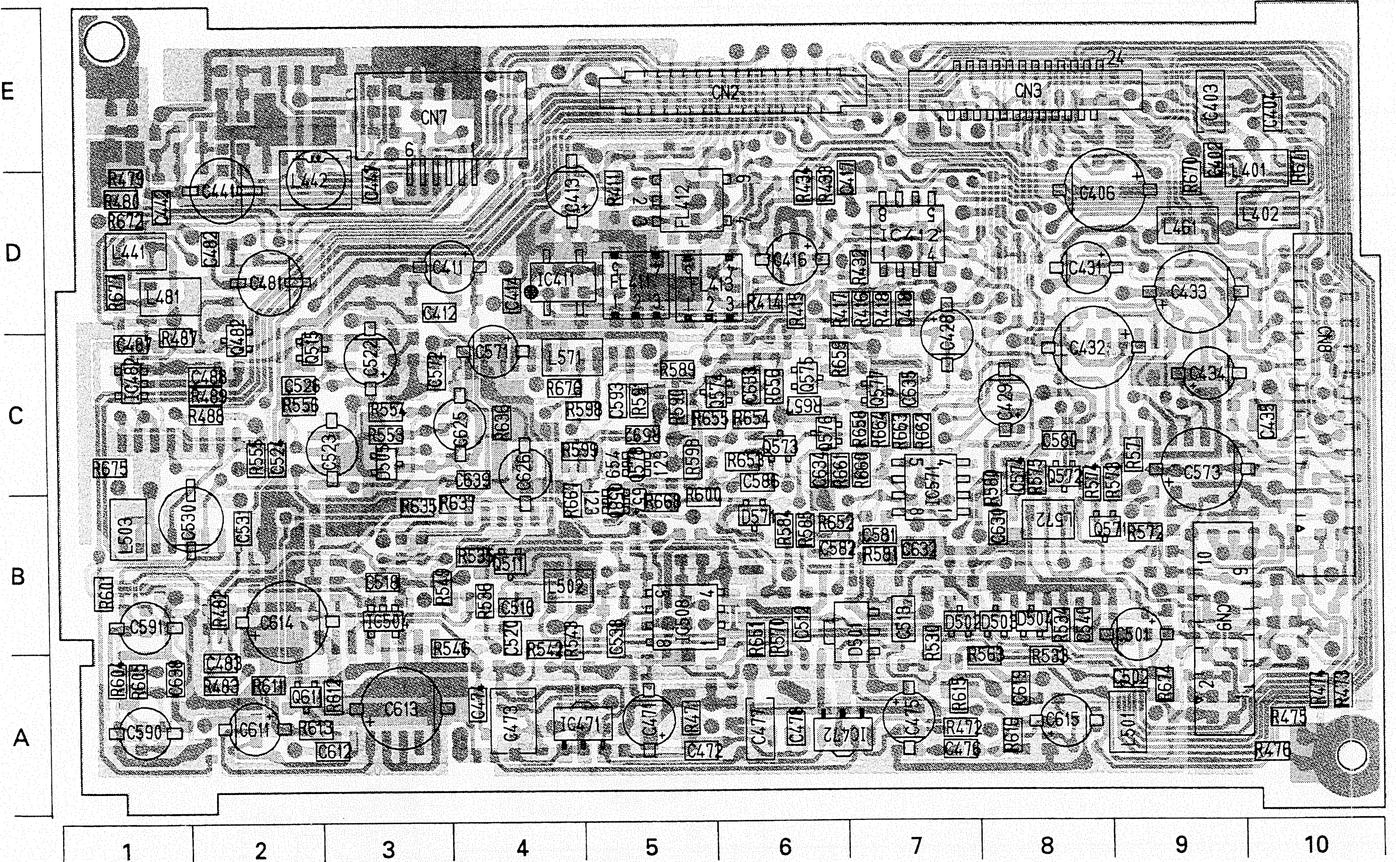
CN2
CN3
D/A
IC401 M62352GP
IC402 TC4W53F
Q401 DTC114EU
IC411 MM1031XM
FL411 SCV2806-001
FL413 SCV2807-001
FL412
IC412.1 CXA1211M
IC412.2 CXA1211M
Q402 MSC3930(B)
Q403 2SD1819
Q405 2SD1819
Q406 2SD1819
Q407 2SA1610
IC413 TC4W53F
SC COARSE
IC501 TC74HC4052BF
IC503 AD817AR
Q501 MSC3930
Q502 MSC3930
Q503 MSC3930
Q504 MSC3930
Q505 2SA1532
Q506 MSC3930
Q507 MSC3930
Q508 MSC3930
Q511 2SA1532(B)
Q512 MSC3930
D501 SVC341L
D502 MA143WA
D503 MA143WA
D504 NC
IC508.1 UPC358G
IC508.2 UPC358G
PHASE SHIFTER
SC FINE
(SC2) (SC1)
B A ON CH
L L 12 (-45°)
L H 14 (+45°)
H L 15 (+135°)
H H 11 (+225°)
SYNC SEPA.
V. SYNC SEPA.
IC571 LM1881M
Q571 2SA1532
Q572 MSC3930
Q573 2SB1218
Q574 2SD1819
Q575 2SB1218
Q576 2SB1218
Q577 2SD1819
IC572.1 TC74HC32AF
IC572.2 TC74HC32AF
IC572.3 TC74HC32AF
IC572.4 TC74HC32AF
IC573.1 UPD5556G
IC573.2 UPD5556G
D571 MA142WK
Q578 XP4601
Q579 2SD1819
Q611 2SD1819
D611 MA142WK
IC611.1 UPD5556G
IC611.2 UPD5556G
IC612 TC4S81FTE85L
IC613 TC4S30F
Q613 DTC114EU
Q614 XP4601
Q615 DTC114EU
IC614 MC14046BFL
PHASE COMP.
LINE LOCK


CN2
CN3
CN7
DALD
DAD
DACK
SET
DOWN
UP
RIGHT
LEFT
RM CTL
SI2
SO2
HLI
SC1
SC2
L/L
VC
TERM
ED
AC
+5.7V
GND
C OUT
Y OUT
4fsc DC
Fh DC
C BLK
CONT ⊕
DRIVE ⊖
CONT ⊖
DRIVE ⊕
+9V
D401 MA143WA
DC IRIS LENS DRIVER
FL413
FL412
IC412.1 CXA1211M
IC412.2 CXA1211M
IC413 TC4W53F
IC415 MM1024AF
IC441.1 UPC358G
IC441.2 UPC358G
Q403 2SD1819
Q404 2SA1532
Q405 2SD1819
Q406 2SD1819
Q407 2SA1610
PHASE COMP.
SC ERROR
PAL MODEL ONLY
IC503 AD817AR
IC504 TC7S02F
IC505 NJM1496M
IC506.2 UPD358G
IC508.1 UPC358G
IC508.2 UPC358G
Q511 2SA1532(B)
Q512 MSC3930
Q514 XP6401
Q515 DTC114EU
Q516 2SD1819
Q517 2SD1819
Q518 2SD1819
SC FINE
H ERROR
IC573.1 UPD5556G
IC573.2 UPD5556G
IC574 MC14046BFL
Q578 XP4601
Q579 2SD1819
Q580 XP4601
IC481.2 UPC358G
IC481.1 UPC358G
IC482 TC4S71F
Q482 DTC114EU
IC483.3
IC611.2 UPD5556G
IC614 MC14046BFL
Q614 XP4601
Q615 DTC114EU
Q616 DTC114EU
IC506.1 UPC358G
L/L ERROR
IC484.1 UPC4558G
IC484.2 UPC4558G
INT. fh ERROR
INT. 4fsc ERROR

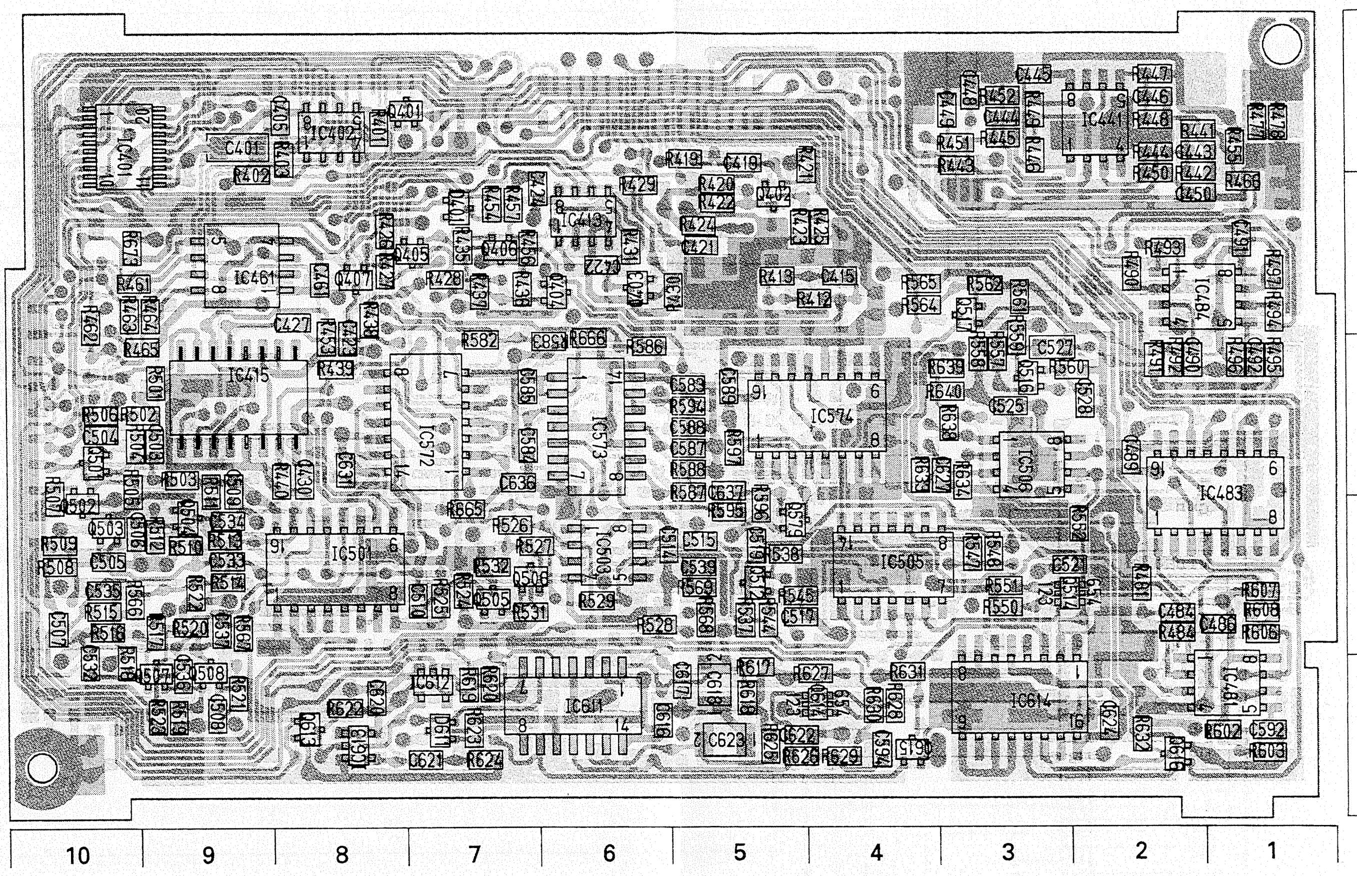

CN7
1 GND
2 CONT ⊕
3 DRIVE ⊖
4 CONT ⊖
5 DRIVE ⊕
6 +9V
DC IRIS LENS DRIVER
IC441.1 UPC358G
IC441.2 UPC358G
IC461 SN75179B
SC ERROR
PAL MODEL ONLY
Q516 2SD1819
Q517 2SD1819
Q518 2SD1819
D505 MA143WA
D506 MA143WA
D507 MA143WA
IC506.2 UPD358G
Q515 DTC114EU
IC505 NJM1496M
COMP.
H ERROR
IC481.2 UPC358G
IC481.1 UPC358G
IC482 TC4S71F
Q482 DTC114EU
IC483.1 MC14053BF
IC483.2
IC483.3
IC471 AN8085M
IC472 TK11650U
INT. fh ERROR
IC484.1 UPC4558G
IC484.2 UPC4558G
INT. 4fsc ERROR
ERROR
CN8
20 RM CTL
19 TX
18 TX
17 RX
16 RX
15 LEFT
14 RIGHT
13 DOWN
12 UP
11 SET
10 V. IRIS
9 Y OUT
8 C OUT
7 TERM(75Ω)
6 EXT VBS
5 VIDEO OUT
4 GND
3 GND
2 -9V
1 +9.5V
CN9
1 GND
2 GND
3 PW CONT
4 LINE
5 -9V
6 +15V
7 +5.7V
8 +5.7V
9 +8.5V
10 +9.5V

3.9 GEN CIRCUIT BOARD

— SIDE A —



— SIDE B —



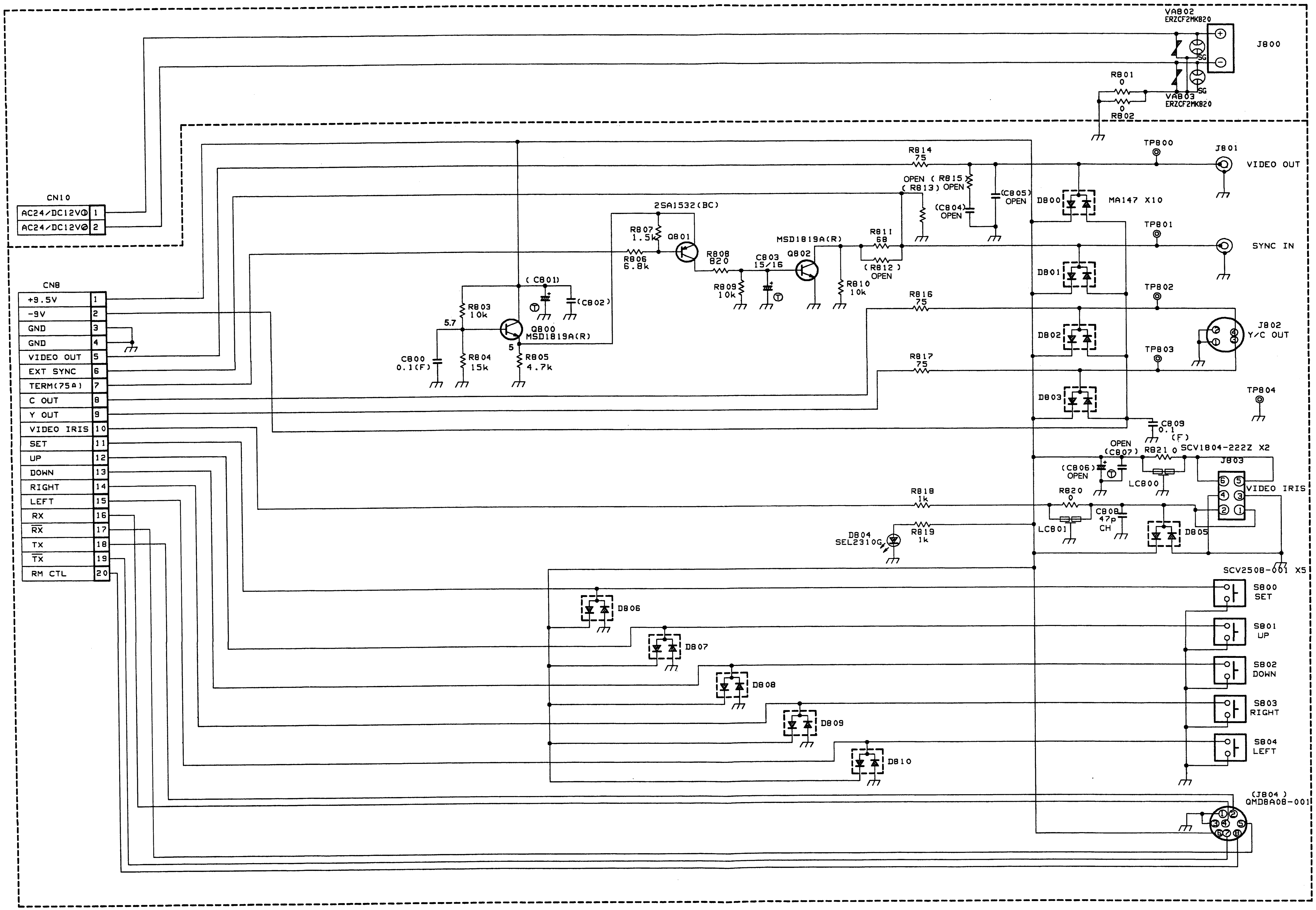
● ADDRESS TABLE OF BOARD PARTS

Each address may have an address error by one interval.

A–1C
Side — A
1 — X axis
C — Y axis

IC401	B- 10E	Q402	B- 5D	Q580	A- 5B	R422	B- 5D	R452	B- 3E	R491	B- 2C	R524	B- 7B	R557	B- 3C	R591	A- 5C	R625	B- 5A	R665	B- 7B	C423	B- 8D	C481	A- 2D	C521	B- 3B	C587	B- 5C	C635	A- 7C
IC402	B- 8E	Q403	B- 6D	Q611	A- 2A	R423	B- 5D	R453	B- 8D	R492	B- 2C	R525	B- 7B	R558	B- 3C	R592	A- 5C	R626	B- 5A	R666	B- 6D	C424	B- 7D	C482	A- 2D	C522	A- 3C	C588	B- 5C	C636	B- 7C
IC411	A- 4D	Q404	B- 6D	Q613	B- 8A	R424	B- 5D	R454	B- 7D	R493	B- 2D	R526	B- 7B	R559	B- 3D	R593	A- 5C	R627	B- 4B	R667	A- 4B	C427	B- 8D	C483	A- 2B	C523	A- 3C	C589	B- 5C	C637	B- 5C
IC412	A- 7D	Q405	B- 7D	Q614	B- 4A	R425	B- 4D	R455	B- 1E	R494	B- 1D	R527	B- 7B	R560	B- 3C	R594	B- 5C	R628	B- 4A	R668	A- 5B	C428	A- 7D	C484	B- 2B	C524	A- 2C	C590	A- 1A	C638	A- 1A
IC413	B- 6D	Q406	B- 7D	Q615	B- 4A	R426	B- 8D	R456	B- 7D	R495	B- 1C	R528	B- 6B	R561	B- 3D	R595	B- 5B	R629	B- 4A	R670	A- 9D	C429	A- 8C	C486	B- 1B	C525	B- 3C	C591	A- 1B	C639	A- 4C
IC415	B- 8C	Q407	B- 8D	Q616	B- 2A	R427	B- 8D	R457	B- 7D	R496	B- 1C	R529	B- 6B	R562	B- 3D	R596	B- 5C	R630	B- 4A	R671	A- 10E	C430	B- 8C	C487	A- 1D	C526	A- 2C	C592	B- 1A		
IC441	B- 3E	Q482	A- 2D			R428	B- 7D	R461	B- 10D	R497	B- 1D	R530	A- 7B	R563	A- 8B	R597	B- 5C	R631	B- 4B	R672	A- 1D	C431	A- 8D	C488	A- 2C	C527	B- 3D	C593	A- 5C	L401	A- 10E
IC461	B- 9D	Q501	B- 10C	D401	B- 7D	R429	B- 6D	R462	B- 10D	R501	B- 9C	R531	B- 7B	R564	B- 4D	R598	A- 5C	R632	B- 2A	R673	B- 10D	C432	A- 8C	C489	B- 2C	C528	B- 2C	C594	B- 4A	L402	A- 10D
IC471	A- 5A	Q502	B- 10C	D501	A- 7B	R430	B- 6D	R463	B- 10D	R502	B- 10C	R532	B- 7B	R565	B- 4D	R599	A- 5C	R633	B- 4C	R674	A- 9A	C433	A- 9D	C490	B- 2C	C530	A- 2B	C611	A- 2A	L441	A- 1D
IC472	A- 6A	Q503	B- 10B	D502	A- 7B	R431	B- 6D	R464	B- 9D	R503	B- 9C	R533	A- 8B	R566	B- 10B	R600	A- 5C	R634	B- 3C	R675	A- 1C	C434	A- 9C	C491	B- 1D	C531	A- 2B	C612	A- 3A	L442	A- 3D
IC481	B- 1B	Q504	B- 9B	D503	A- 8B	R432	A- 7D	R465	B- 10D	R504	B- 10C	R534	A- 8B	R567	B- 9B	R601	A- 1B	R635	A- 3B	R676	A- 4C	C435	A- 10C	C492	B- 1C	C532	B- 10B	C613	A- 3A	L461	A- 9D
IC482	A- 1C	Q505	B- 7B	D504	A- 8B	R433	A- 6D	R466	B- 1D	R505	B- 10C	R535	A- 4B	R568	B- 5B	R602	B- 1A	R636	A- 4C	R677	A- 1D	C441	A- 2D	C501	A- 9B	C533	B- 9B	C614	A- 2B	L481	A- 1D
IC483	B- 2C	Q506	B- 7B	D505	A- 3C	R434	A- 6D	R471	A- 5A	R506	B- 10C	R536	A- 4B	R569	B- 5B	R603	B- 1A	R637	A- 4B			C442	A- 1D	C502	A- 9A	C534	B- 9B	C615	A- 8A	L501	A- 9A
IC484	B- 2D	Q507	B- 9B	D571	A- 6B	R435	B- 7D	R472	A- 7A	R507	B- 10C	R537	B- 5B	R570	A- 6B	R604	A- 1A	R638	B- 3C	C401	B- 9E	C443	B- 2E	C503	B- 9C	C535	B- 10B	C616	B- 6A	L502	A- 4B
IC501	B- 9B	Q508	B- 9B	D611	B- 7A	R436	B- 7D	R473	A- 10A	R508	B- 10B	R538	B- 5B	R571	A- 9C	R605	A- 1A	R639	B- 3C	C402	A- 9E	C444	B- 3E	C504	B- 10C	C536	B- 9A	C617	B- 6A	L503	A- 1B
IC503	B- 6B	Q511	A- 4B			R437	B- 7D	R474	A- 10A	R509	B- 10B	R542	A- 4B	R572	A- 9B	R606	B- 1B	R640	B- 3C	C403	A- 9E	C445	B- 3E	C505	B- 10B	C537	B- 9B	C618	B- 5A	L571	A- 4C
IC504	A- 3B	Q512	B- 5B	R401	B- 8E	R438	B- 8D	R475	A- 10A	R510	B- 9B	R543	A- 4B	R573	A- 9C	R607	B- 1B	R651	A- 6B	C404	A- 10E	C446	B- 2E	C506	B- 10B	C538	A- 5B	C619	A- 8A	L572	A- 8B
IC505	B- 4B	Q514	B- 3B	R402	B- 9E	R439	B- 8C	R476	A- 10A	R511	B- 9C	R544	B- 5B	R574	A- 8C	R608	B- 1B	R652	A- 6B	C405	B- 8E	C447	A- 3D	C507	B- 10B	C539	B- 5B	C620	B- 8A		
IC506	B- 3C	Q515	A- 2C	R403	B- 8E	R440	B- 8C	R477	B- 1E	R512	B- 9B	R545	B- 5B	R575	A- 8C	R611	A- 2A	R653	A- 6C	C406	A- 8D	C448	B- 3E	C508	B- 9A	C540	A- 8B	C621	B- 7A	CN2	A- 6E
IC508	A- 5B	Q516	B- 3C	R411	A- 5D	R441	B- 2E	R478	B- 1E	R513	B- 9B	R546	A- 3B	R580	A- 8C	R612	A- 3A	R654	A- 6C	C411	A- 4D	C449	B- 3E	C509	B- 9C	C571	A- 4C	C622	B- 5A	CN3	A- 8E
IC571	A- 7B	Q517	B- 3D	R412	B- 4D	R442	B- 2E	R479	A- 1D	R514	B- 9B	R547	B- 3B	R581	A- 7B	R613	A- 2A	R655	A- 6C	C412	A- 3D	C450	B- 2D	C510	B- 7B	C572	A- 3C	C623	B- 5A	CN7	A- 3E
IC572	B- 7C	Q571	A- 8B	R413	B- 5D	R443	B- 3E	R480	A- 1D	R515	B- 10B	R548	B- 3B	R582	B- 7D	R615	A- 7A	R656	A- 6C	C413	A- 4D	C461	B- 8D	C512	A- 6B	C573	A- 9C	C624	B- 2A	CN8	A- 10C
IC573	B- 6C	Q572	A- 8C	R414	A- 6D	R444	B- 2E	R481	B- 2B	R516	B- 10B	R549	A- 3B	R583	B- 6D	R616	A- 8A	R657	A- 6C	C414	A- 4D	C471	A- 5A	C513	A- 7B	C574	A- 8C	C625	A- 4C	CN9	A- 9B
IC574	B- 5C	Q573	A- 6C	R415	A- 6D	R445	B- 3E	R482	A- 2B	R517	B- 9B	R550	B- 3B	R584	A- 6B	R617	B- 5B	R658	A- 7C	C415	B- 4D	C472	A- 5A	C514	B- 6B	C580	A- 8C	C626	A- 4C		
IC611	B- 6A	Q574	A- 6C	R416	A- 7D	R446	B- 3E	R483	A- 2A	R518	B- 10B	R551	B- 3B	R585	A- 6B	R618	B- 5A	R659	A- 6C	C416	A- 6D	C473	A- 4A	C515	B- 5B	C581	A- 7B	C627	B- 4C	FL411	A- 5D
IC612	B- 7A	Q575	A- 6C	R417	A- 6D	R447	B- 2E	R484	B- 2B	R519	B- 9A	R552	B- 2B	R586	B- 6D	R619	B- 7A	R660	A- 7C	C417	A- 7D	C474	A- 4A	C516	A- 4B	C582	A- 6B	C630	A- 8B	FL412	A- 5D
IC613	B- 8A	Q576	A- 6C	R418	A- 7D	R448	B- 2E	R487	A- 1D	R520	B- 9B	R553	A- 3C	R587	B- 5C	R620	B- 7A	R661	A- 6C	C418	A- 7D	C475	A- 7A	C517	B- 5B	C583	B- 5C	C631	B- 8C	FL413	A- 5D
IC614	B- 2A	Q577	A- 7C	R419	B- 5E	R449	B- 3E	R488	A- 2C	R521	B- 9A	R554	A- 3C	R588	B- 5C	R622	B- 8A	R662	A- 7C	C419	B- 5E	C476	A- 7A	C518	A- 3B	C584	B- 7C	C632	A- 7B		
		Q578	A- 5C	R420	B- 5D	R450	B- 2E	R489	A- 2C	R522	B- 9B	R555	A- 2C	R589	A- 5C	R623	B- 7A	R663	A- 7C	C421	B- 5D	C477	A- 6A	C519	B- 5B	C585	B- 7C	C633	A- 6C		
Q401	B- 8E	Q579	B- 5B	R421	B- 5E	R451	B- 3E	R490	B- 2D	R523	B- 9A	R556	A- 2C	R590	A- 5C	R624	B- 7A	R664	A- 7C	C422	B- 6D	C478	A- 6A	C520	A- 4B	C586	A- 6C	C634	A- 6C		

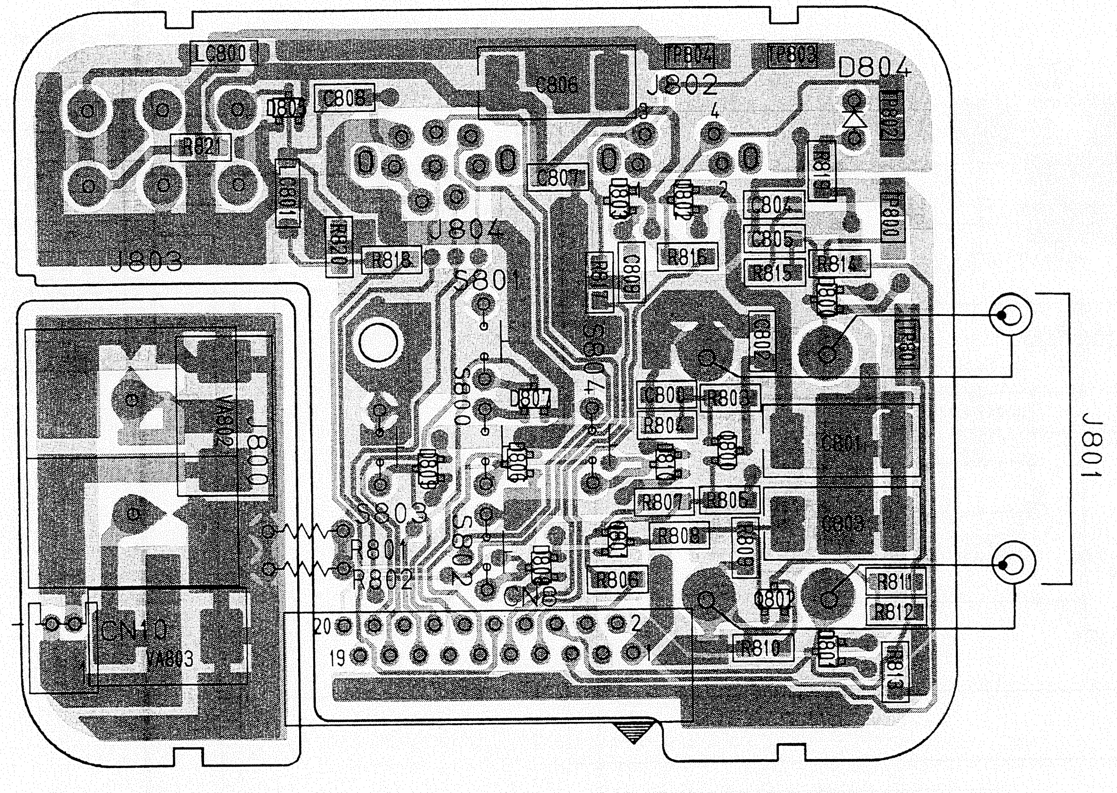
3.10 TERM BOARD SCHEMATIC DIAGRAM



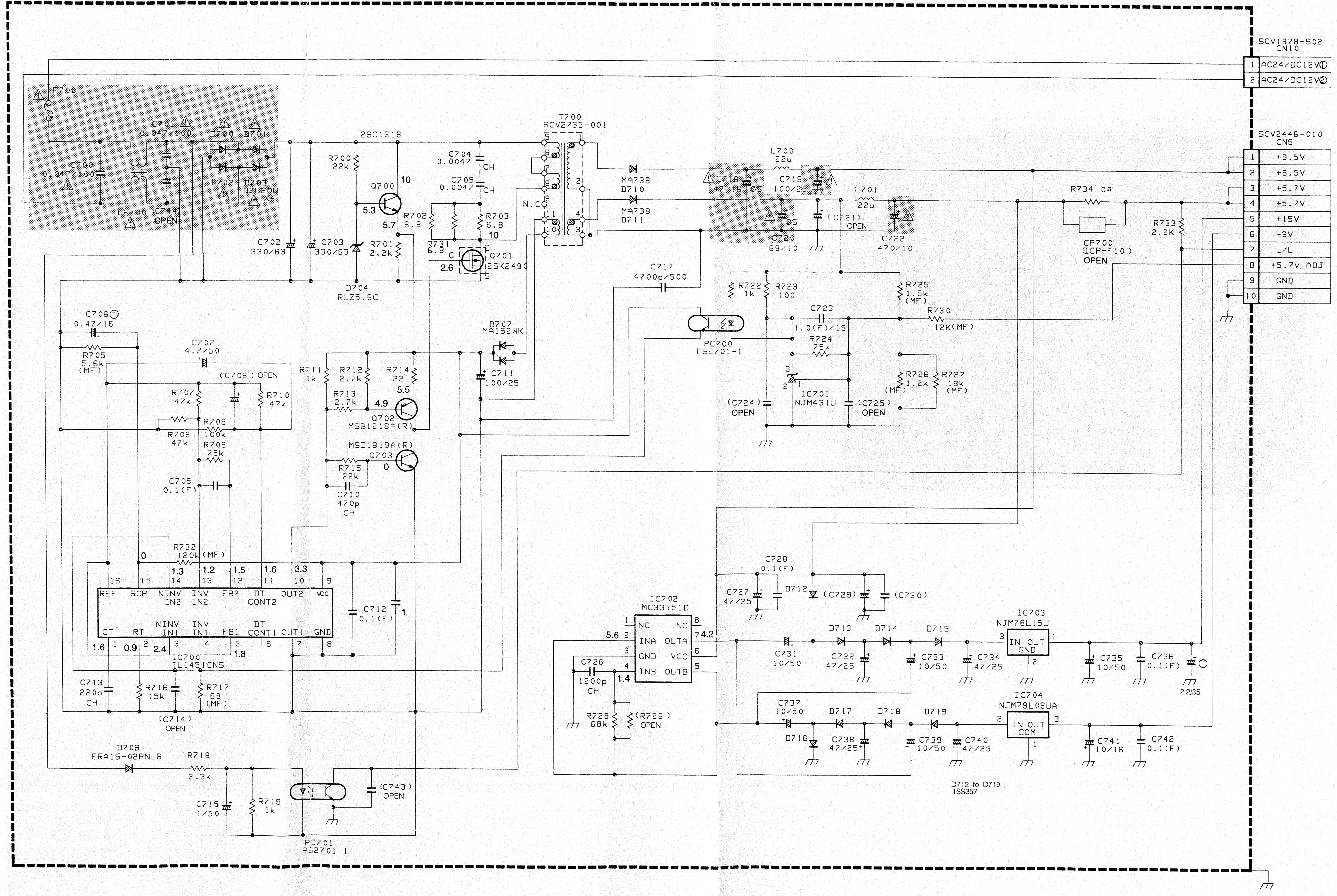
VA802
ERZCF2MK820
J800
SG
R801
0
0
R802
VA803
ERZCF2MK820
CN10
AC24/DC12V① 1
AC24/DC12V② 2
CN8
+9.5V 1
-9V 2
GND 3
GND 4
VIDEO OUT 5
EXT SYNC 6
TERM(75Ω) 7
C OUT 8
Y OUT 9
VIDEO IRIS 10
SET 11
UP 12
DOWN 13
RIGHT 14
LEFT 15
RX 16
$\overline{RX}$ 17
TX 18
$\overline{TX}$ 19
RM CTL 20
2SA1532(BC)
R807
1.5k
Q801
R806
6.8k
R808
820
C803
15/16
Q802
MSD1819A(R)
R811
68
(R812)
OPEN
R809
10k
R810
10k
(C801)
(C802)
R803
10k
5.7
Q800
MSD1819A(R)
5
C800
0.1(F)
R804
15k
R805
4.7k
R814
75
OPEN (R815)
(R813) OPEN
(C804)
OPEN
(C805)
OPEN
D800
MA147 X10
D801
D802
D803
TP800
J801
VIDEO OUT
TP801
SYNC IN
R816
75
TP802
J802
Y/C OUT
R817
75
TP803
TP804
C809
0.1
(F)
OPEN
(C807)
R821 0
SCV1804-222Z X2
J803
(C806)
OPEN
LC800
VIDEO IRIS
R818
1k
R820
0
C808
47p
CH
LC801
D805
D804
SEL2310G
R819
1k
SCV2508-001 X5
D806
S800
SET
D807
S801
UP
D808
S802
DOWN
D809
S803
RIGHT
D810
S804
LEFT
(J804)
QMD8A08-001

3.11 TERM CIRCUIT BOARD

— SIDE B —


LC800
C808
D805
R821
L801
R820
R818
J803
C806
J802
TP804
TP803
D804
R802
R819
C807
D803
D802
C804
C805
TP800
J804
S801
D811
C809
R816
R815
R814
D800
C802
TP801
J801
S804
S800
D807
C800
R803
R804
R801
J800
VA802
D808
D809
R807
R805
S803
S802
R801
R802
D810
D806
R808
R809
R806
C801
C803
R811
R812
C803
R810
D801
R813
GND
CN410
VA803
20
19
2
1

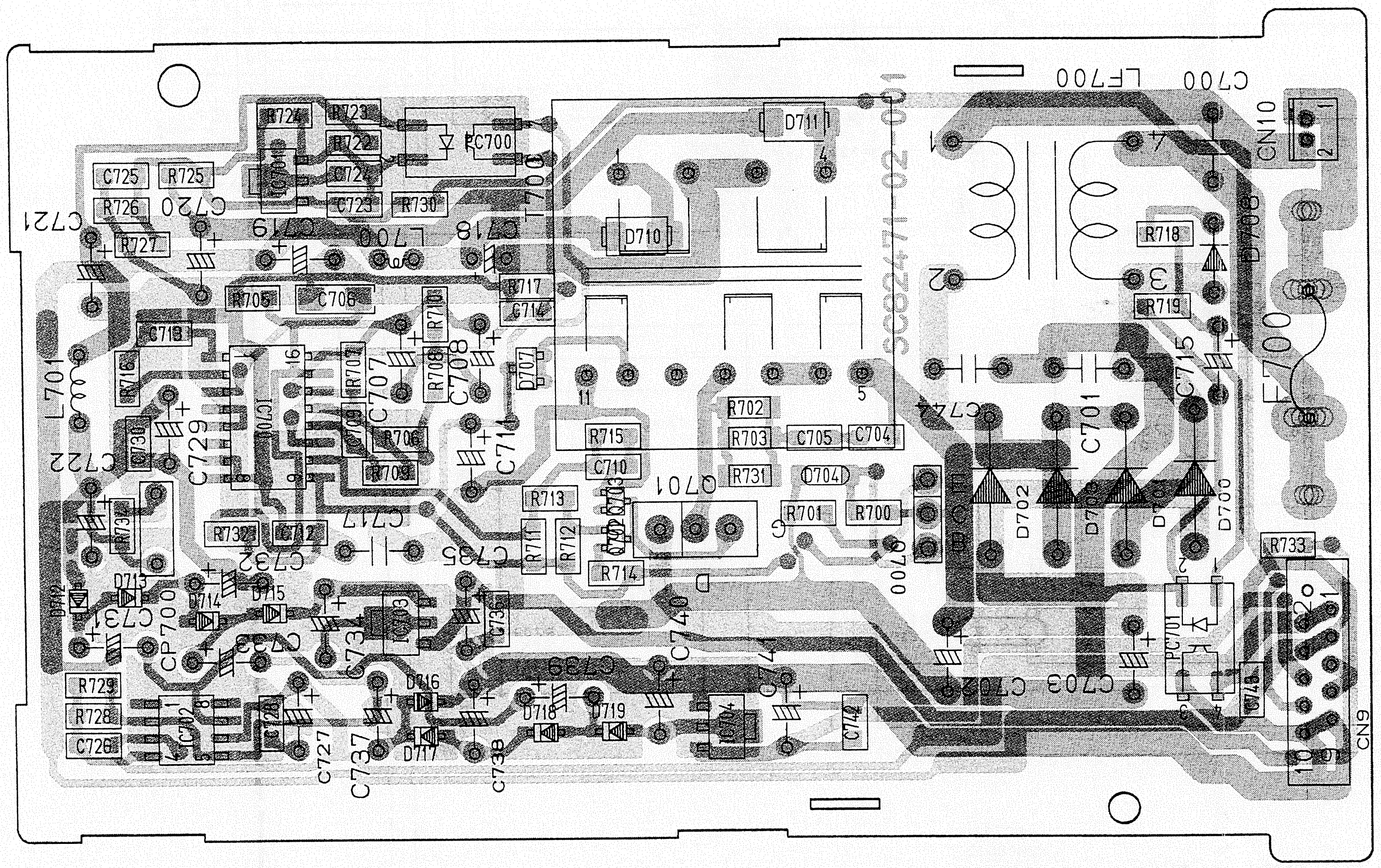
3.12 POWER BOARD SCHEMATIC DIAGRAM (TK-C1380)



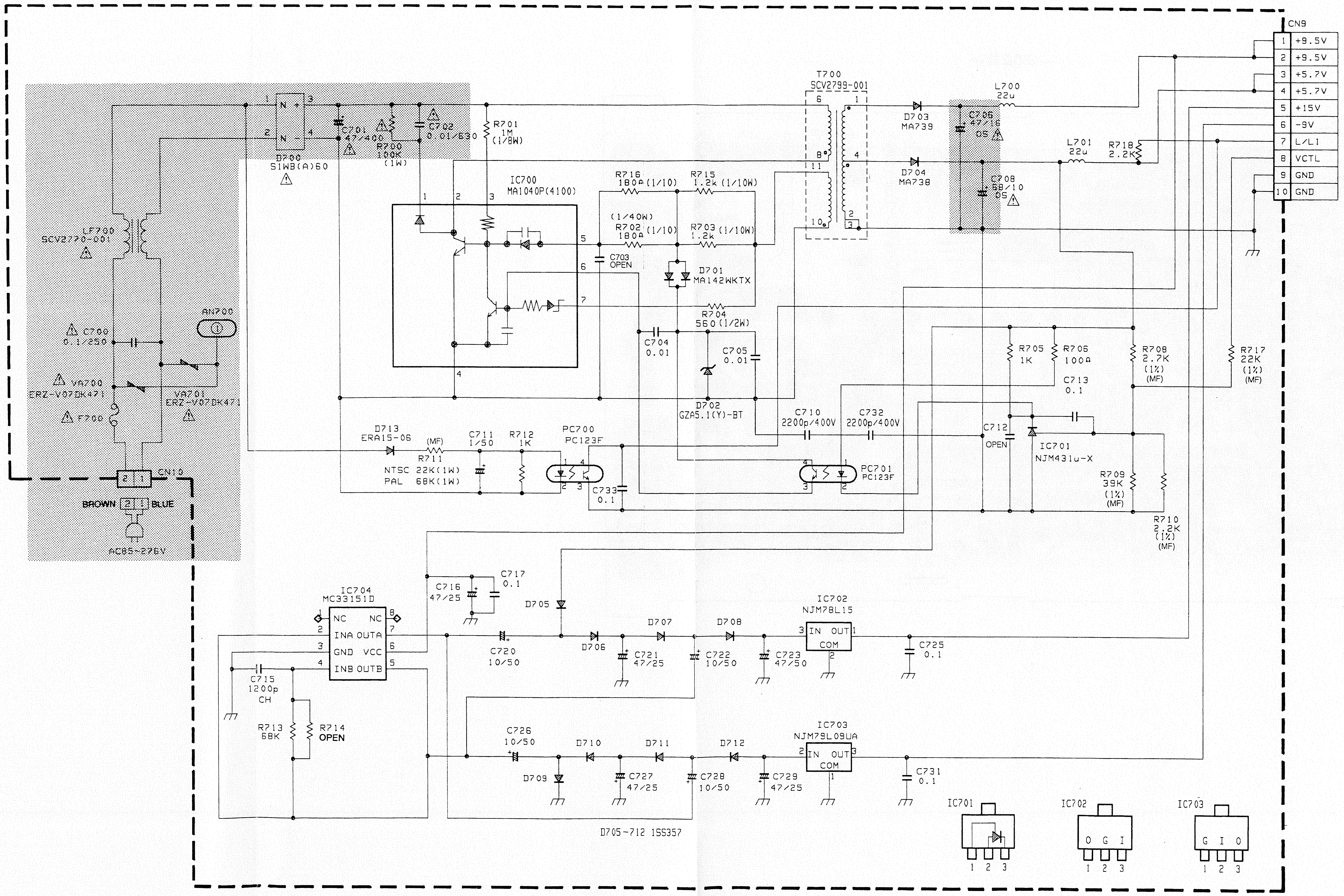
SCV1978-S02
CN10
1 AC24/DC12V①
2 AC24/DC12V②
SCV2446-010
CN9
1 +9.5V
2 +9.5V
3 +5.7V
4 +5.7V
5 +15V
6 -9V
7 L/L
8 +5.7V ADJ
9 GND
10 GND
F700
C701 0.047/100
D700 D701
D702 D703
D2L20U X4
C700 0.047/100
LF700
(C744) OPEN
2SC1318
R700 22k
Q700
C702 330/63
C703 330/63
R701 2.2k
D704 RLZ5.6C
C704 0.0047 CH
C705 0.0047 CH
R702 6.8
R703 6.8
R731 6.8
Q701 2SK2490
T700 SCV2735-001
N.C
MA739 D710
MA738 D711
L700 22u
C718 47/16 OS
C719 100/25
C720 68/10 OS
(C721) OPEN
L701 22u
C722 470/10
R734 0Ω
CP700 (ICP-F10) OPEN
R733 2.2K
C717 4700p/500
R722 1k
R723 100
R725 1.5k (MF)
C723 1.0(F)/16
R730 12K(MF)
R724 75k
PC700 PS2701-1
IC701 NJM431U
(C724) OPEN
(C725) OPEN
R726 1.2k (MF)
R727 18k (MF)
C706 0.47/16
R705 5.6k (MF)
C707 4.7/50
(C708) OPEN
R707 47k
R710 47k
R706 47k
R708 100k
R709 75k
C709 0.1(F)
R711 1k
R712 2.7k
R713 2.7k
R714 22
Q702 MSB1218A(R)
MSD1819A(R) Q703
R715 22k
C710 470p CH
D707 MA152WK
C711 100/25
R732 120k (MF)
IC700 TL1451CNS
REF SCP NINV IN2 INV IN2 FB2 DT CONT2 OUT2 Vcc
CT RT NINV IN1 INV IN1 FB1 DT CONT1 OUT1 GND
C712 0.1(F)
C713 220p CH
R716 15k
R717 68 (MF)
(C714) OPEN
D708 ERA15-02PNLB
R718 3.3k
C715 1/50
R719 1k
(C743) OPEN
PC701 PS2701-1
IC702 MC33151D
NC INA GND INB NC OUTA VCC OUTB
C726 1200p CH
R728 68k
(R729) OPEN
C727 47/25
C728 0.1(F)
D712
(C729)
(C730)
C731 10/50
D713 D714 D715
C732 47/25
C733 10/50
C734 47/25
IC703 NJM78L15U
IN OUT GND
C735 10/50
C736 0.1(F)
2.2/35
C737 10/50
D716 D717 D718 D719
C738 47/25
C739 10/50
C740 47/25
IC704 NJM79L09UA
IN OUT COM
C741 10/16
C742 0.1(F)
D712 to D719 1SS357
10 5.3 5.7 10 2.6 5.5 4.9 0 1.3 1.2 1.5 1.6 3.3 0 1.6 0.9 2.4 1.8 1 5.6 1.4 4.2

3.13 POWER CIRCUIT BOARD (TK-C1380)

— SIDE B —

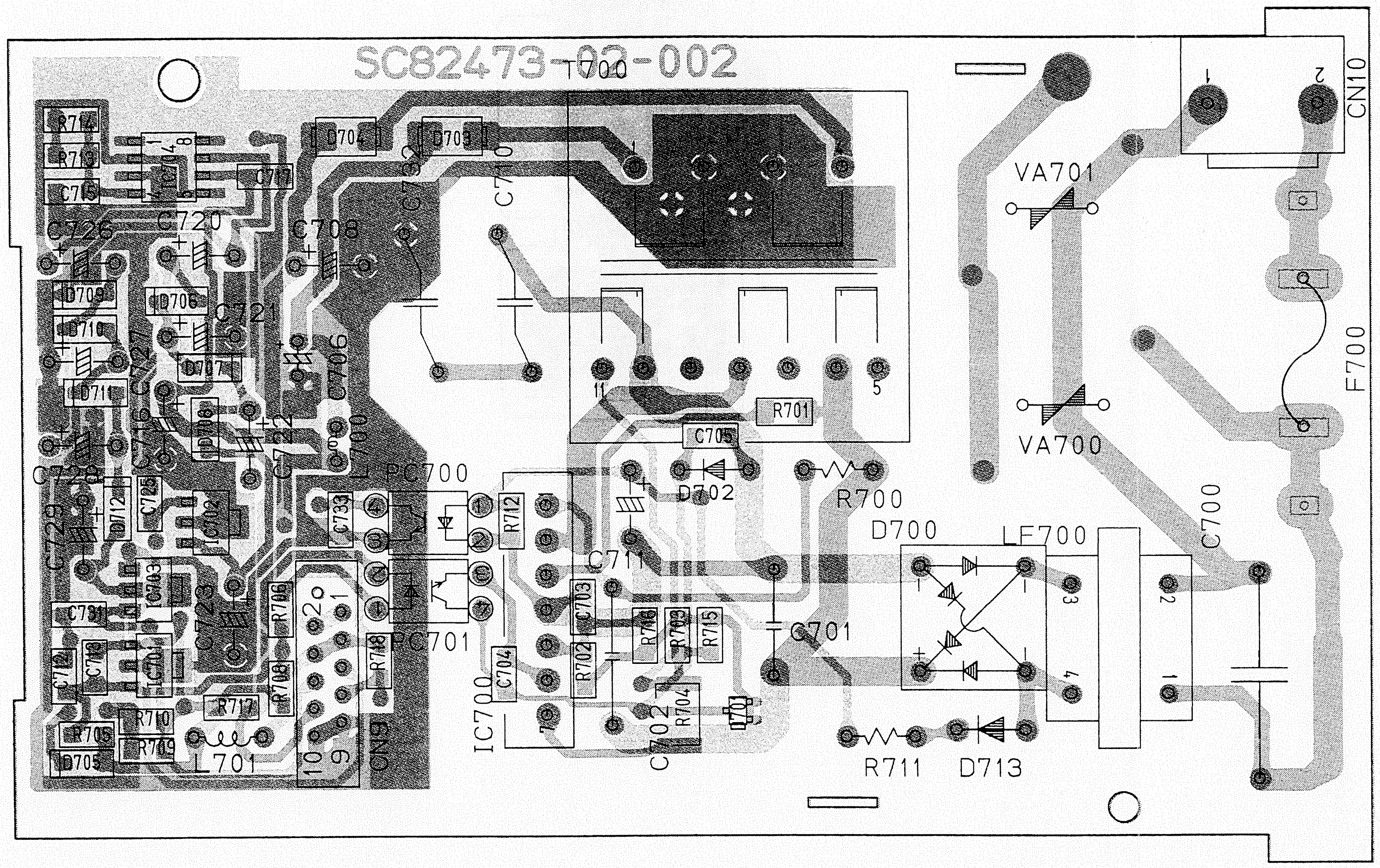

R724
R723
PC700
D711
R722
C725
R725
R721
C723
R730
IC700
T700
C720
C721
R726
C719
L700
C718
D710
R727
R717
R718
D708
C700
LF700
CN10
R705
C706
R710
C714
R719
C713
C715
F700
L701
R716
IC701
R702
R707
R709
D707
C708
C707
C711
R708
R706
R703
C705
C704
C724
C701
C729
R704
R715
R731
D704
C722
C710
R713
Q701
R701
R700
D702
D703
D701
D700
R736
R732
R712
C717
C735
R711
R712
R714
D712
D713
D714
D715
C731
C730
C733
C734
IC703
C736
C740
Q700
R733
PC701
CP700
C739
C741
C703
C702
R729
R728
C726
IC702
C728
C727
C737
D716
D717
D718
D719
C738
IC704
C742
D748
CN9
SC02471-02-001

3.14 POWER BOARD SCHEMATIC DIAGRAM (TK-C1381)

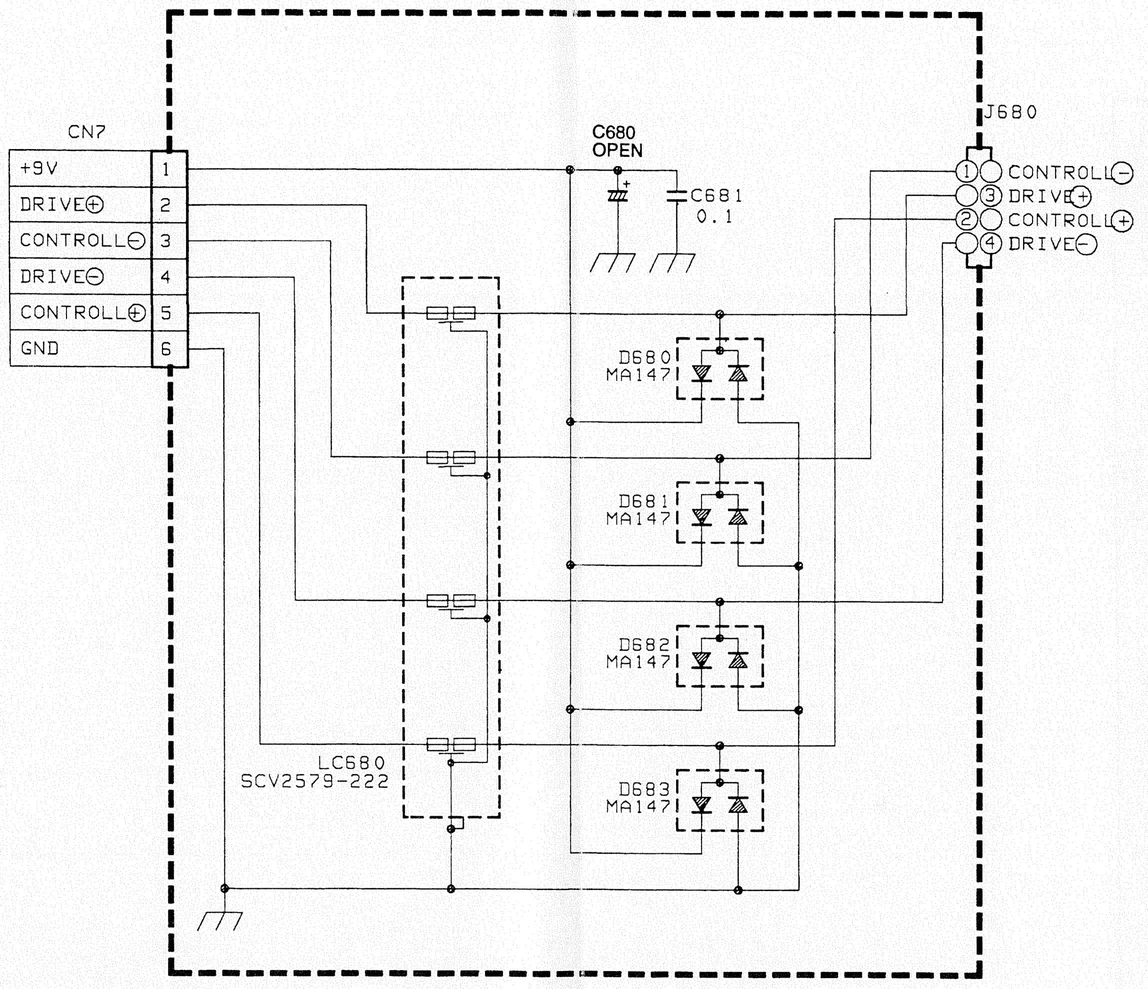

CN9
1 +9.5V
2 +9.5V
3 +5.7V
4 +5.7V
5 +15V
6 -9V
7 L/LI
8 VCTL
9 GND
10 GND
T700
SCV2799-001
L700
22u
L701
22u
R718
2.2K
D703
MA739
D704
MA738
C706
47/16
OS
C708
68/10
OS
D700
S1WB(A)60
C701
47/400
R700
100K
(1W)
C702
0.01/630
R701
1M
(1/8W)
IC700
MA1040P(4100)
R716
180Ω(1/10)
R715
1.2k (1/10W)
(1/40W)
R702
180Ω
(1/10)
R703
1.2k
(1/10W)
C703
OPEN
D701
MA142WKTX
R704
560(1/2W)
C704
0.01
C705
0.01
D702
GZA5.1(Y)-BT
C710
2200p/400V
C732
2200p/400V
LF700
SCV2770-001
AN700
C700
0.1/250
VA700
ERZ-V07DK471
VA701
ERZ-V07DK471
F700
CN10
BROWN
BLUE
AC85-276V
D713
ERA15-06
(MF)
R711
NTSC 22K(1W)
PAL 68K(1W)
C711
1/50
R712
1K
PC700
PC123F
C733
0.1
PC701
PC123F
R705
1K
R706
100Ω
C713
0.1
R708
2.7K
(1%)
(MF)
R717
22K
(1%)
(MF)
C712
OPEN
IC701
NJM431U-X
R709
39K
(1%)
(MF)
R710
2.2K
(1%)
(MF)
IC704
MC33151D
NC
NC
INA OUTA
GND VCC
INB OUTB
C716
47/25
C717
0.1
D705
C715
1200p
CH
R713
68K
R714
OPEN
C720
10/50
D706
D707
D708
C721
47/25
C722
10/50
C723
47/50
IC702
NJM78L15
IN OUT
COM
C725
0.1
C726
10/50
D709
D710
D711
D712
C727
47/25
C728
10/50
C729
47/25
IC703
NJM79L09UA
C731
0.1
D705-712 1SS357
IC701
IC702
O G I
IC703
G I O
1 2 3

3.15 POWER CIRCUIT BOARD (TK-C1381)

— SIDE B —

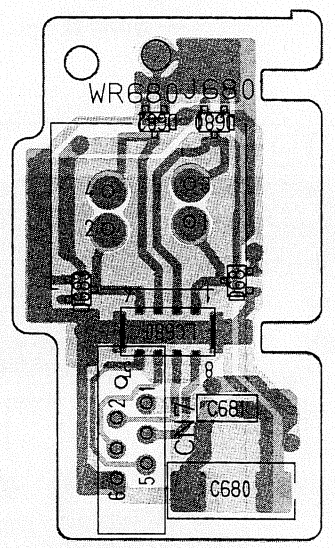

SC82473-02-002
T700
D704
D703
C710
C732
C708
C726
C720
C721
C706
L700
PC700
PC701
IC700
C704
C711
C705
D702
R701
R700
D700
LF700
C700
C701
R711
D713
VA701
VA700
F700
CN10
CN9
L701
C723

3.16 DC IRIS BOARD SCHEMATIC DIAGRAM

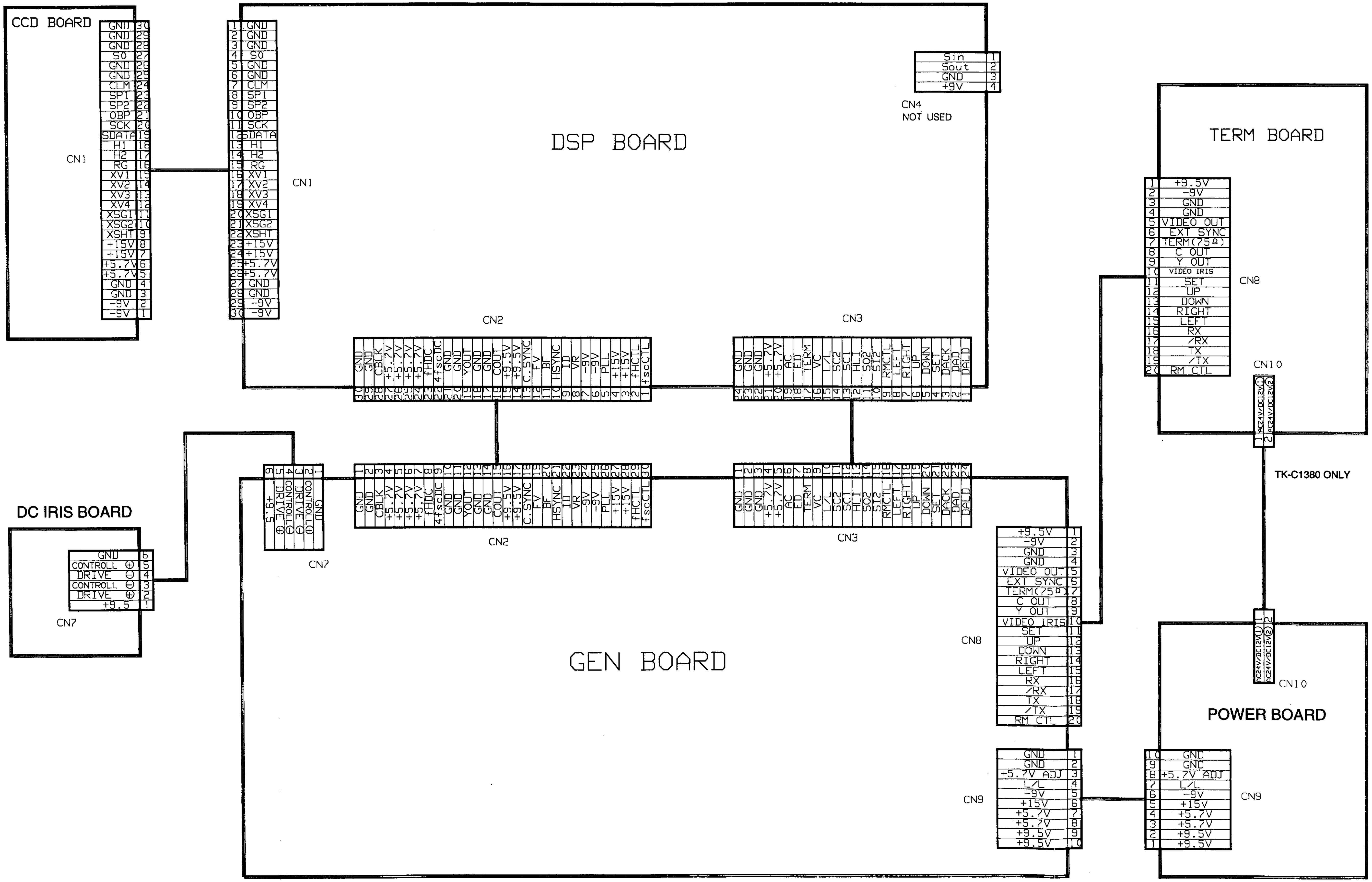

CN7
+9V 1
DRIVE⊕ 2
CONTROLL⊖ 3
DRIVE⊖ 4
CONTROLL⊕ 5
GND 6
C680
OPEN
C681
0.1
J680
① CONTROLL⊖
③ DRIVE⊕
② CONTROLL⊕
④ DRIVE⊖
D680
MA147
D681
MA147
D682
MA147
D683
MA147
LC680
SCV2579-222

3.17 DC IRIS CIRCUIT BOARD

— SIDE B —

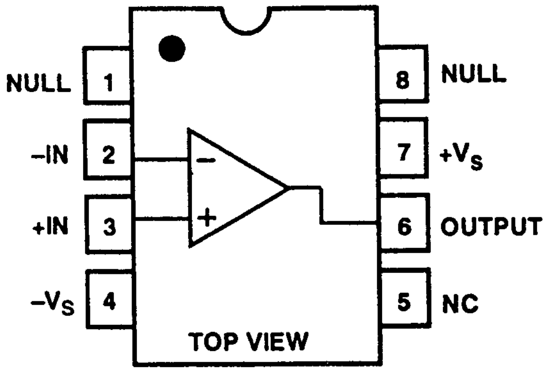

WR680
J680
4
2
7
1
8
2
5
6
CN7
C681
C680

3.18 OVERALL WIRINGS


CCD BOARD
CN1
GND 30, GND 29, GND 28, S0 27, GND 26, GND 25, CLM 24, SP1 23, SP2 22, OBP 21, SCK 20, SDATA 19, H1 18, H2 17, RG 16, XV1 15, XV2 14, XV3 13, XV4 12, XSG1 11, XSG2 10, XSHT 9, +15V 8, +15V 7, +5.7V 6, +5.7V 5, GND 4, GND 3, -9V 2, -9V 1
DSP BOARD
CN1
1 GND, 2 GND, 3 GND, 4 S0, 5 GND, 6 GND, 7 CLM, 8 SP1, 9 SP2, 10 OBP, 11 SCK, 12 SDATA, 13 H1, 14 H2, 15 RG, 16 XV1, 17 XV2, 18 XV3, 19 XV4, 20 XSG1, 21 XSG2, 22 XSHT, 23 +15V, 24 +15V, 25 +5.7V, 26 +5.7V, 27 GND, 28 GND, 29 -9V, 30 -9V
CN4
NOT USED
Sin 1, Sout 2, GND 3, +9V 4
CN2
GND 30, GND 29, CBLK 28, +5.7V 27, +5.7V 26, +5.7V 25, +5.7V 24, fHDC 23, 4fscDC 22, GND 21, GND 20, YOUT 19, GND 18, GND 17, COUT 16, +9.5V 15, +9.5V 14, C.SYNC 13, FV 12, BF 11, HSYNC 10, ID 9, VR 8, -9V 7, -9V 6, PLL 5, +15V 4, +15V 3, fHCTL 2, fscCTL 1
CN3
GND 24, GND 23, GND 22, +5.7V 21, +5.7V 20, AC 19, ED 18, TERM 17, VC 16, L/L 15, SC2 14, SC1 13, HLI 12, SO2 11, SI2 10, RMCTL 9, LEFT 8, RIGHT 7, UP 6, DOWN 5, SET 4, DACK 3, DAD 2, DALD 1
TERM BOARD
CN8
1 +9.5V, 2 -9V, 3 GND, 4 GND, 5 VIDEO OUT, 6 EXT SYNC, 7 TERM(75Ω), 8 C OUT, 9 Y OUT, 10 VIDEO IRIS, 11 SET, 12 UP, 13 DOWN, 14 RIGHT, 15 LEFT, 16 RX, 17 /RX, 18 TX, 19 /TX, 20 RM CTL
CN10
1 AC24V/DC12V①, 2 AC24V/DC12V②
TK-C1380 ONLY
DC IRIS BOARD
CN7
GND 6, CONTROLL ⊕ 5, DRIVE ⊖ 4, CONTROLL ⊖ 3, DRIVE ⊕ 2, +9.5 1
GEN BOARD
CN7
1 GND, 2 CONTROLL⊕, 3 DRIVE⊖, 4 CONTROLL⊖, 5 DRIVE ⊕, 6 +9.5
CN2
1 GND, 2 GND, 3 CBLK, 4 +5.7V, 5 +5.7V, 6 +5.7V, 7 +5.7V, 8 fHDC, 9 4fscDC, 10 GND, 11 GND, 12 YOUT, 13 GND, 14 GND, 15 COUT, 16 +9.5V, 17 +9.5V, 18 C.SYNC, 19 FV, 20 BF, 21 HSYNC, 22 ID, 23 VR, 24 -9V, 25 -9V, 26 PLL, 27 +15V, 28 +15V, 29 fHCTL, 30 fscCTL
CN3
1 GND, 2 GND, 3 GND, 4 +5.7V, 5 +5.7V, 6 AC, 7 ED, 8 TERM, 9 VC, 10 L/L, 11 SC2, 12 SC1, 13 HLI, 14 SO2, 15 SI2, 16 RMCTL, 17 LEFT, 18 RIGHT, 19 UP, 20 DOWN, 21 SET, 22 DACK, 23 DAD, 24 DALD
CN8
+9.5V 1, -9V 2, GND 3, GND 4, VIDEO OUT 5, EXT SYNC 6, TERM(75Ω) 7, C OUT 8, Y OUT 9, VIDEO IRIS 10, SET 11, UP 12, DOWN 13, RIGHT 14, LEFT 15, RX 16, /RX 17, TX 18, /TX 19, RM CTL 20
CN9
GND 1, GND 2, +5.7V ADJ 3, L/L 4, -9V 5, +15V 6, +5.7V 7, +5.7V 8, +9.5V 9, +9.5V 10
POWER BOARD
CN10
1 AC24V/DC12V①, 2 AC24V/DC12V②
CN9
10 GND, 9 GND, 8 +5.7V ADJ, 7 L/L, 6 -9V, 5 +15V, 4 +5.7V, 3 +5.7V, 2 +9.5V, 1 +9.5V

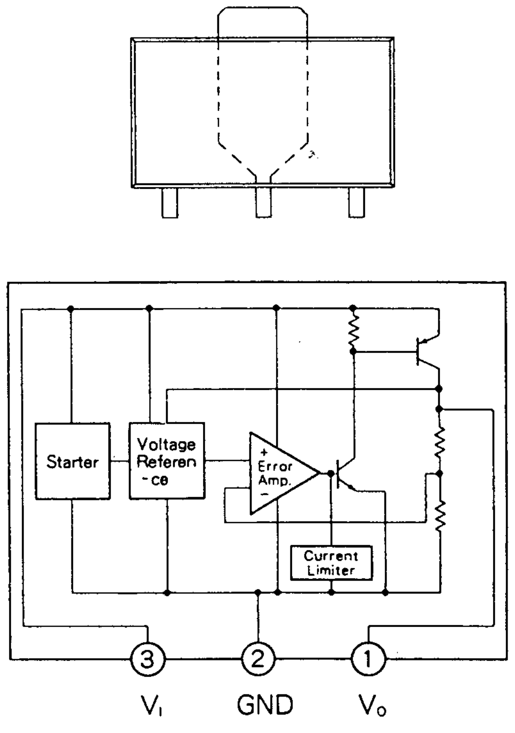
3.19 BLOCK DIAGRAMS OF IC'S

■ AD817AR-X 【ANALOG DEVICES】
(Hi-Speed Low Power Op.Amp)


NULL 1
-IN 2
+IN 3
-VS 4
8 NULL
7 +VS
6 OUTPUT
5 NC
TOP VIEW

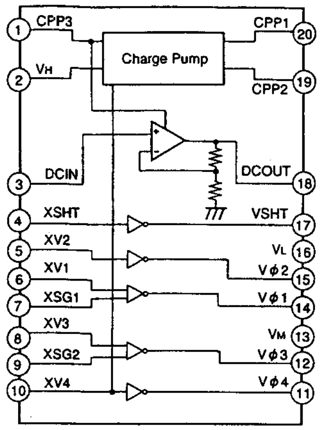
NC = NO CONNECT

■ AN8002M-W 【MATSUSHITA】
(3-Terminal Positive Fixed Voltage Regulator)


Starter
Voltage Referen-ce
Error Amp.
Current Limiter
③ Vi
② GND
① Vo

AN8002M

■ CXD1267AN-T4 【SONY】
(Vertical Clock Driver for CCD Image Sensor)


CPP3
VH
DCIN
XSHT
XV2
XV1
XSG1
XV3
XSG2
XV4
Charge Pump
CPP1
CPP2
DCOUT
VSHT
VL
Vϕ2
Vϕ1
VM
Vϕ3
Vϕ4

(Top View)

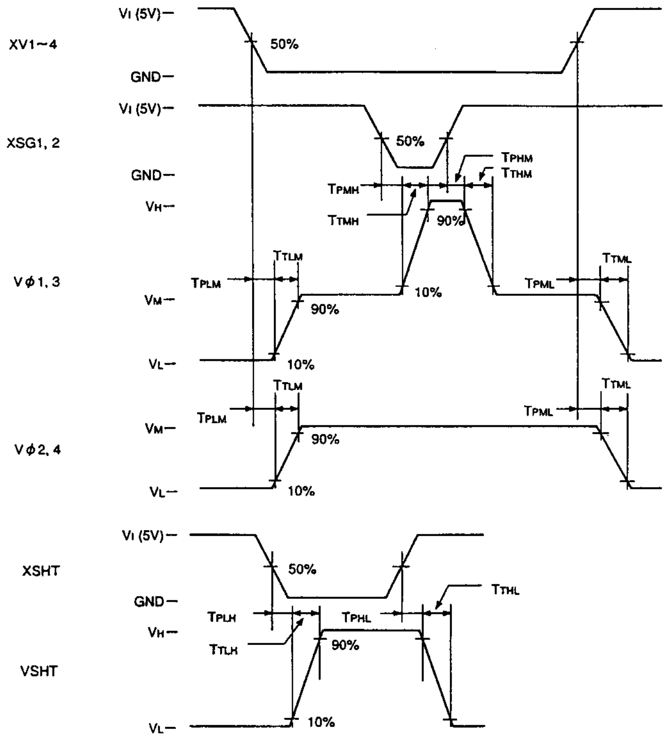
True Table

Input				Output		
XV1, 3	XSG1, 2	XV2, 4	XSHT	Vϕ1, 3	Vϕ2, 4	VSHT
L	L	X	X	V_H	X	X
H	L	X	X	Z	X	X
L	H	X	X	V_M	X	X
H	H	X	X	V_L	X	X
X	X	L	X	X	V_M	X
X	X	H	X	X	V_L	X
X	X	X	L	X	X	V_H
X	X	X	H	X	X	V_L

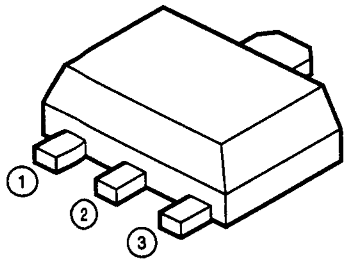
X : Don't care
Z : High impedance

Pin No.	Name	I/O	Description
1	CPP3	O	Charge Pump Output
2	V_H	I	Power Source (15V)
3	DCIN	I	O. P. amp. Input
4	XSHT	I	Output CTL (VSHT)
5	XV2	I	Output CTL (Vø2)
6	XV1	I	Output CTL (Vø1)
7	XSG1	I	Output CTL (Vø1)
8	XV3	I	Output CTL (Vø3)
9	XSG2	I	Output CTL (Vø3)
10	XV4	I	Output CTL (Vø4)
11	Vø4	O	High Voltage Output (2 Level : VM, VL)
12	Vø3	O	High Voltage Output (3 Level : VH, VM, VL)
13	V_M	–	GND
14	Vø1	O	High Voltage Output (3 Level : VH, VM, VL)
15	Vø2	O	High Voltage Output (2 Level : VM, VL)
16	V_L	I	Power Source (–8.5V)
17	VSHT	O	High Voltage Output (2 Level : VH, VL)
18	DCOUT	O	O. P. amp. Output
19	CPP2	–	Charge Pump
20	CPP1	–	Charge Pump

Weve form

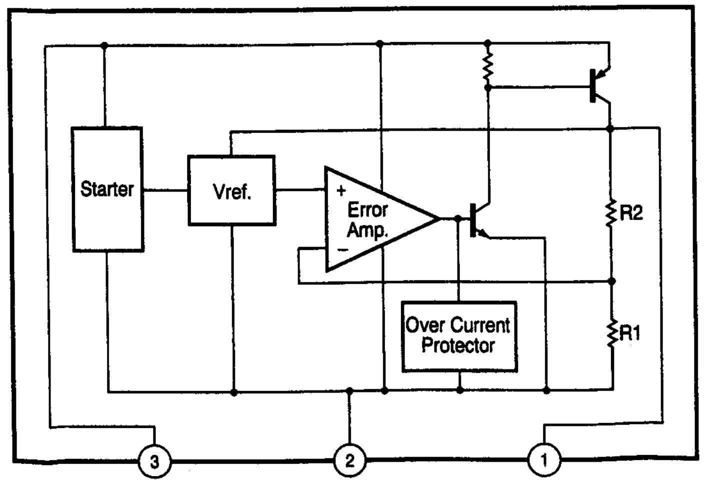


■ AN8085M-X 【MATSUSHITA】
(3 Terminal Positive Voltage Regulator (+8.5V))

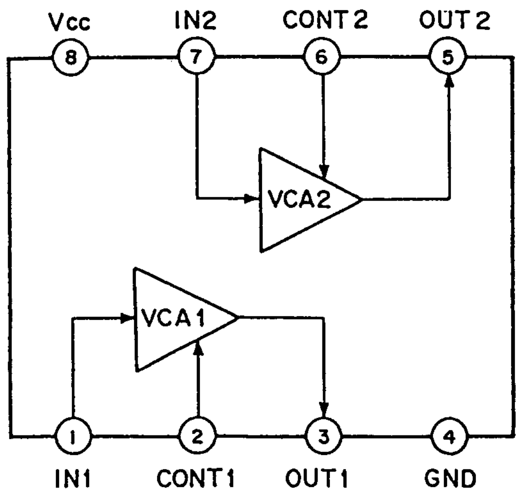


[Terminal Description]

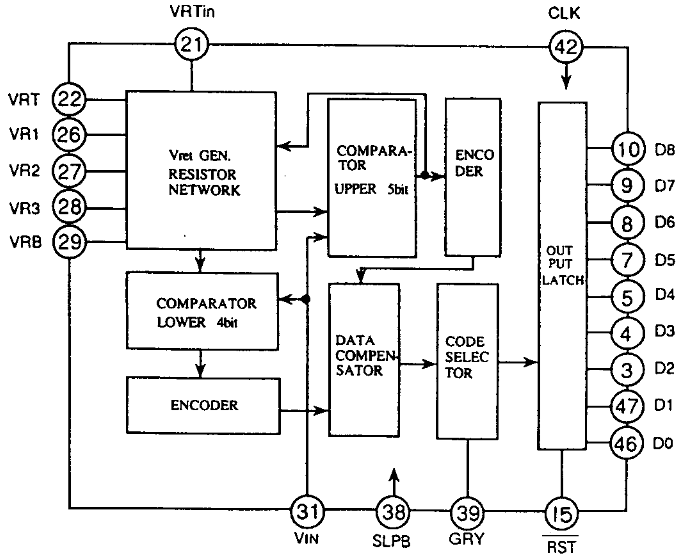
Pin No.	Description
1	OUT
2	COM
3	IN


Starter
Vref.
Error Amp.
Over Current Protector
R2
R1
③
②
①

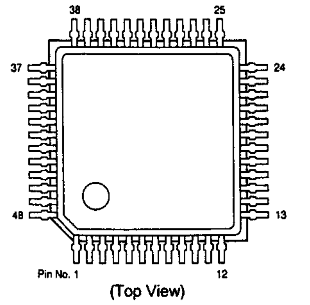
■ CXA1211M-X 【SONY】
(Electric Volume)

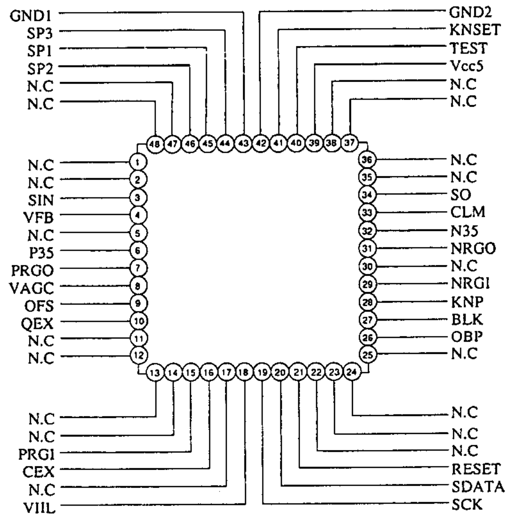

Vcc ⑧
IN2 ⑦
CONT2 ⑥
OUT2 ⑤
VCA2
VCA1
① IN1
② CONT1
③ OUT1
④ GND

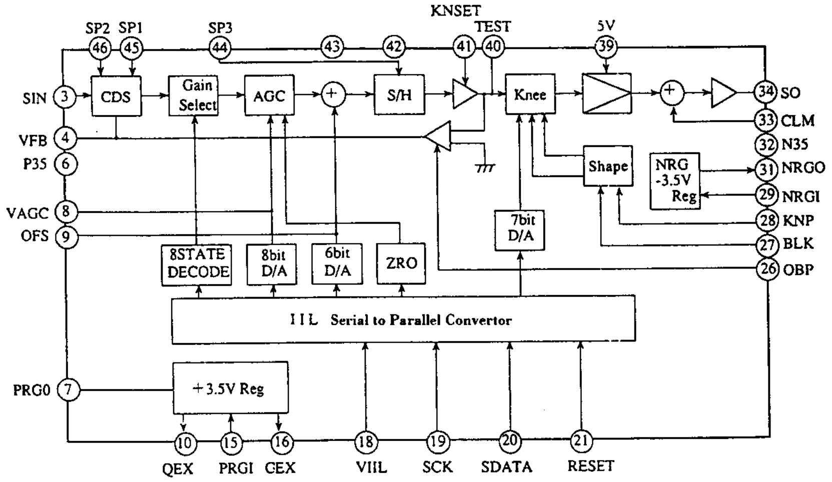
■ HD49319F 【HITACHI】
(9 Bit A/D Converter)


VRTin 21
CLK 42
VRT 22
VR1 26
VR2 27
VR3 28
VRB 29
Vref GEN. RESISTOR NETWORK
COMPARA-TOR UPPER 5bit
ENCO DER
COMPARATOR LOWER 4bit
ENCODER
DATA COMPEN-SATOR
CODE SELEC TOR
OUT PUT LATCH
10 D8
9 D7
8 D6
7 D5
5 D4
4 D3
3 D2
47 D1
46 D0
31 VIN
38 SLPB
39 GRY
15 RST

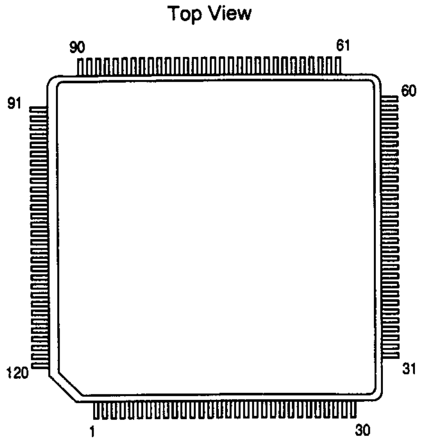
■ HA118184F 【HITACHI】
(CDS and Process)

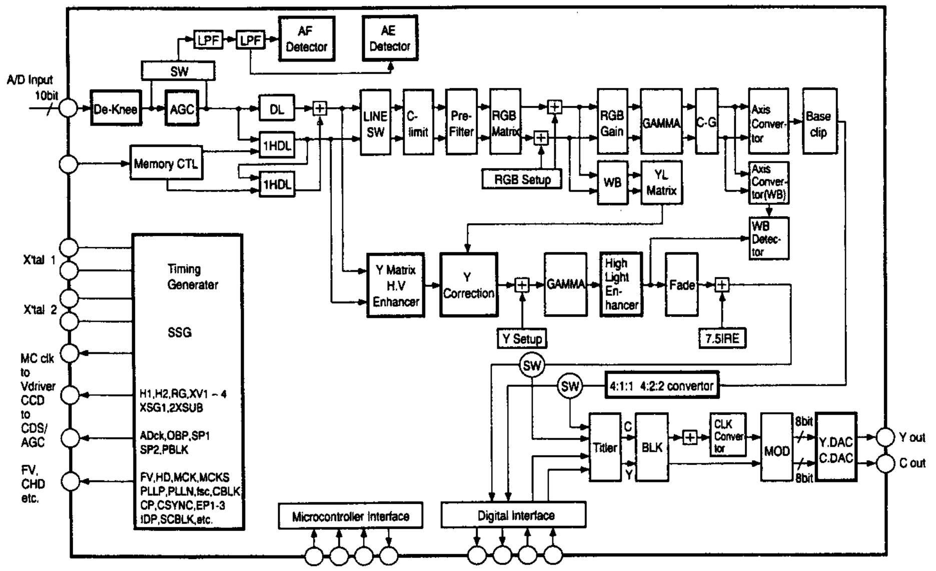

38
25
37
24
48
13
Pin No. 1
12
(Top View)


GND1
SP3
SP1
SP2
N.C
N.C
GND2
KNSET
TEST
Vcc5
N.C
N.C
N.C
N.C
SIN
VFB
N.C
P35
PRGO
VAGC
OFS
QEX
N.C
N.C
N.C
N.C
SO
CLM
N35
NRGO
N.C
NRGI
KNP
BLK
OBP
N.C
N.C
N.C
PRGI
CEX
N.C
VIIL
N.C
N.C
N.C
RESET
SDATA
SCK


KNSET
TEST
5V
SP2
SP1
SP3
SIN
VFB
P35
VAGC
OFS
PRGO
CDS
Gain Select
AGC
S/H
Knee
Shape
NRG -3.5V Reg
7bit D/A
8STATE DECODE
8bit D/A
6bit D/A
ZRO
IIL Serial to Parallel Convertor
+3.5V Reg
SO
CLM
N35
NRGO
NRGI
KNP
BLK
OBP
QEX
PRGI
CEX
VIIL
SCK
SDATA
RESET

■ HD49811TFA 【HITACHI】
(Process, Encoder,SSG and Timing Gennerator)


Top View
90
61
91
60
120
31
1
30

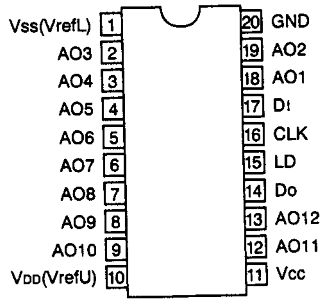

A/D Input 10bit
De-Knee
AGC
SW
LPF
LPF
AF Detector
AE Detector
DL
1HDL
1HDL
LINE SW
C-limit
Pre-Filter
RGB Matrix
RGB Setup
RGB Gain
GAMMA
C-G
Axis Convertor
Base clip
WB
YL Matrix
Axis Convertor(WB)
WB Detector
Memory CTL
X'tal 1
X'tal 2
Timing Generator
SSG
Y Matrix H.V Enhancer
Y Correction
GAMMA
High Light Enhancer
Fade
Y Setup
7.5IRE
SW
SW
4:1:1 4:2:2 convertor
Titler
BLK
CLK Convertor
MOD
8bit
Y.DAC
C.DAC
Y out
C out
MC clk to Vdriver
CCD to CDS/AGC
FV, CHD etc.
H1,H2,RG,XV1 - 4 XSG1,2XSUB
ADck,OBP,SP1 SP2,PBLK
FV,HD,MCK,MCKS PLLP,PLLN,fsc,CBLK CP,CSYNC,EP1-3 IDP,SCBLK,etc.
Microcontroller Interface
Digital Interface

Pin機能表

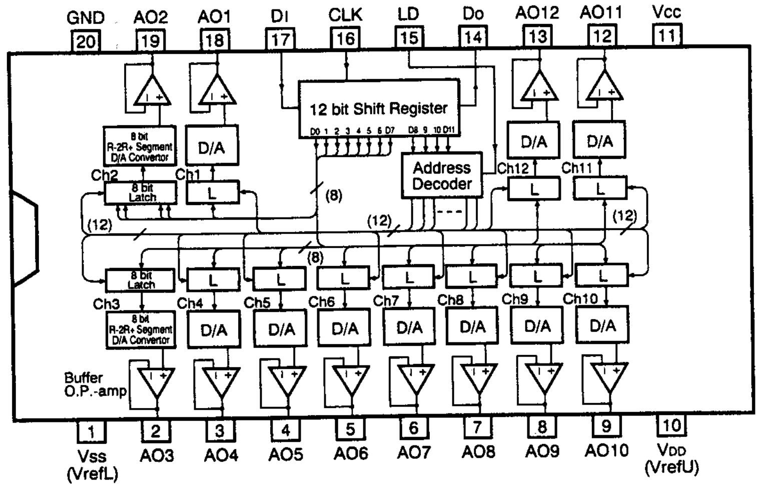
Pin	Symbol	Signal Name	I / O
1	TY_S(4)	Titler set 4	i
2	TY_S(3)	Titler set 3	i
3	TY_S(2)	Titler set 2	i
4	TY_S(1)	Titler set 1	i
5	SDI	State data input	i
6	SDCK	State data clock	i
7	SLD	State data lode pulse	i
8	SDO	AWB,AE,AF data outout	o
9	EP(1)	AE window pulse 1	o
10	EP(2)	AE window pulse 2	o
11	EP(3)	AE window pulse 3	o
12	AF_VIEW		o
13	M_CK	Microcontroller clock Out	o
14	VDD	VCC	Vcc
15	VSS	GND	GND
16	FV	Field Vertical Outout	o
17	HD	Camera HD Outout	o
18	CBLK	Composite Bianking Pulse	o
19	CSYNC	Composite SYNC outout	o
20	SCBLK	SC Bianking Pulse	o
21	HSYNC	Horizontal SYNC	o
22	ID		o
23	IDP		o
24	VDD	VCC	Vcc
25	VSS	GND	GND
26	X1I	OSC 1 input	i
27	X1O	OSC 1 output	o
28	IDS	Line ID reset Input	i
29	MCK_S	Micon Clock Input	i
30	RESET	System Reset	i
31	PLL_N	PLL Negative Output	o
32	PLL_P	PLL Positive Output	o
33	VR	Vertical Reset Input	i
34	X2I	OSC 2 input	i
35	X2O	OSC 2 output	o
36	FSC		o
37	VSS	GND	GND
38	VDD	VCC	Vcc
39	VSS	GND	GND
40	VDD	VCC	Vcc
41	VSS	GND	GND
42	C_OUT	C analog signal output	o
43	CBU		i
44	CBL		i
45	REXT	Vcc for D/A	i
46	Y_OUT	Y analog signal outout	o
47	VSS	GND	GND
48	VDD	VCC	Vcc
49	VSS	GND	GND
50	VDD	VCC	Vcc
51	VSS	GND	GND
52	DICK	Degital Interface Clock Out	o
53	NRYBY	R-Y,B-Y Phase Out	o
54	YPO[8]	Y Pararell Out (8):MSB	o
55	YPO[7]	Y Pararell Out (7)	o
56	YPO[6]	Y Pararell Out (6)	o
57	YPO[5]	Y Pararell Out (5)	o
58	YPO[4]	Y Pararell Out (4)	o
59	YPO[3]	Y Pararell Out (3)	o
60	YPO[2]	Y Pararell Out (2)	o

Pin	Symbol	Signal Name	I / O
61	YPO[1]	Y Pararell Out (1):LSB	o
62	YPI[8]	Y Pararell Input (8):MSB	i
63	YPI[7]	Y Pararell Input (7)	i
64	YPI[6]	Y Pararell Input (6)	i
65	YPI[5]	Y Pararell Input (5)	i
66	YPI[4]	Y Pararell Input (4)	i
67	YPI[3]	Y Pararell Input (3)	i
68	YPI[2]	Y Pararell Input (2)	i
69	YPI[1]	Y Pararell Input (1):LSB	i
70	CPO[8]	C Pararell Out (8):MSB	o
71	CPO[7]	C Pararell Out (7)	o
72	CPO[6]	C Pararell Out (6)	o
73	CPO[5]	C Pararell Out (5)	o
74	VDD	VCC	Vcc
75	VSS	GND	GND
76	CPO[4]	C Pararell Out (4)	o
77	CPO[3]	C Pararell Out (3)	o
78	CPO[2]	C Pararell Out (2)	o
79	CPO[1]	C Pararell Out (1):LSB	o
80	CPI[8]	C Pararell Input (8):MSB	i
81	CPI[7]	C Pararell Input (7)	i
82	CPI[6]	C Pararell Input (6)	i
83	CPI[5]	C Pararell Input (5)	i
84	CPI[4]	C Pararell Input (4)	i
85	CPI[3]	C Pararell Input (3)	i
86	CPI[2]	C Pararell Input (2)	i
87	CPI[1]	C Pararell Input (1)	i
88	NME	Memory Enable In	i
89	FP	Field Pulse	o
90	ZOOM_HD	Zoom HD Out	o
91	AD[10]	AD In(10):MSB	i
92	AD[9]	AD In(9)	i
93	AD[8]	AD In(8)	i
94	AD[7]	AD In(7)	i
95	AD[6]	AD In(6)	i
96	AD[5]	AD In(5)	i
97	AD[4]	AD In(4)	i
98	AD[3]	AD In(3)	i
99	AD[2]	AD In(2)	i
100	AD[1]	AD In(1)	i
101	ADCK	AD Clock	o
102	CPREF	Clomp Refference Out	o
103	CP	Clomp Pulse	o
104	VDD	VCC	Vcc
105	VSS	GND	GND
106	SP1	SP1	o
107	SP2	SP2	o
108	OBP	Optical Black Pulse	o
109	VDD	VCC	Vcc
110	H1	H1	o
111	H2	H2	o
112	RG	Reset Gate	o
113	VDD	VCC	Vcc
114	XV1	XV1	o
115	XV2	XV2	o
116	XV3	XV3	o
117	XV4	XV4	o
118	XSG1	XSG1	o
119	XSG2	XSG2	o
120	XSUB	XSUB	o

■ M62352GP-W 【MITSUBISHI】
(8 bit 12Channel D/A Converter with Buffer Op.Amp.)

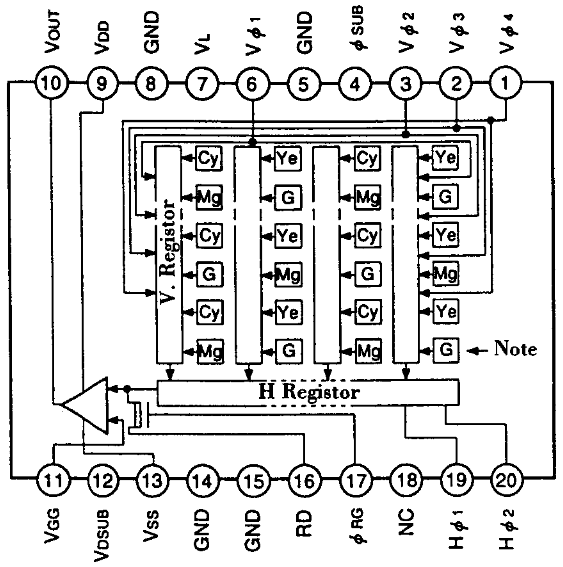

Vss(VrefL) 1
AO3 2
AO4 3
AO5 4
AO6 5
AO7 6
AO8 7
AO9 8
AO10 9
VDD(VrefU) 10
20 GND
19 AO2
18 AO1
17 DI
16 CLK
15 LD
14 Do
13 AO12
12 AO11
11 Vcc

Top View


GND 20
AO2 19
AO1 18
DI 17
CLK 16
LD 15
Do 14
AO12 13
AO11 12
Vcc 11
12 bit Shift Register
Address Decoder
8 bit R-2R+ Segment D/A Convertor
8 bit Latch
D/A
L
Ch1
Ch2
Ch3
Ch4
Ch5
Ch6
Ch7
Ch8
Ch9
Ch10
Ch11
Ch12
(12)
(8)
Buffer O.P.-amp
1 Vss (VrefL)
2 AO3
3 AO4
4 AO5
5 AO6
6 AO7
7 AO8
8 AO9
9 AO10
10 VDD (VrefU)

■ ICX038DNA-6 【SONY】 (1/2 Inch Color CCD Image Sensor for NTSC System Sony)

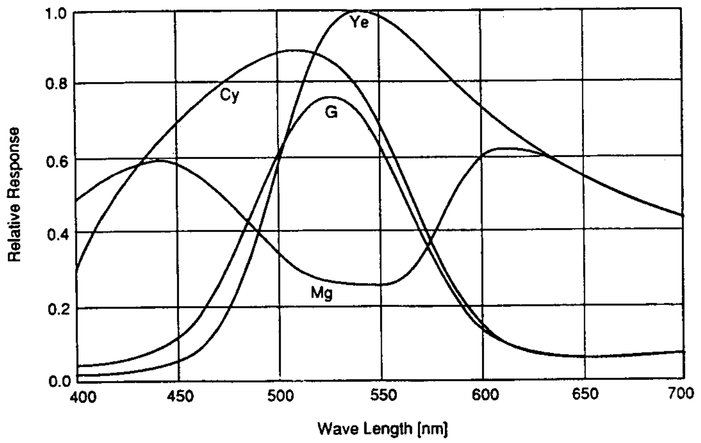
(Top View)


VOUT
VDD
GND
VL
Vϕ1
GND
ϕSUB
Vϕ2
Vϕ3
Vϕ4
10
9
8
7
6
5
4
3
2
1
Cy
Ye
Mg
G
V. Registor
H Registor
Note
11
12
13
14
15
16
17
18
19
20
VGG
VDSUB
VSS
GND
GND
RD
ϕRG
NC
Hϕ1
Hϕ2

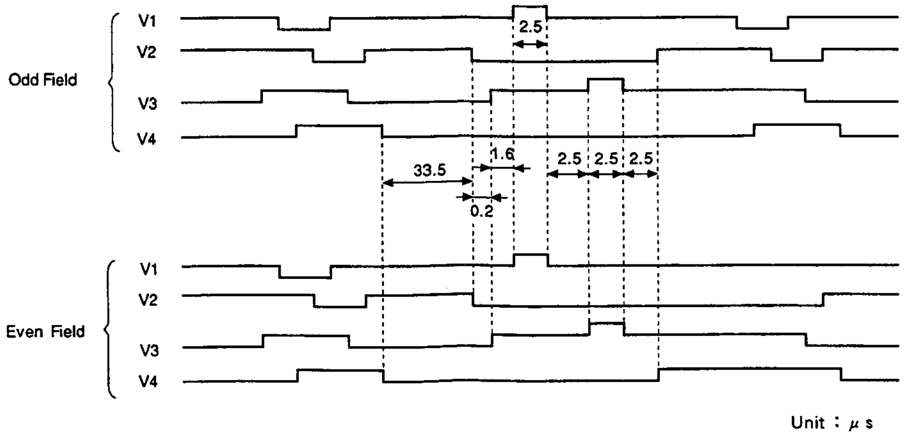
Note □: Photo Sensor

Pin No.	Name	Description	Pin No.	Name	Description
1	$V_{\phi 4}$	V Registor Transfer Clock	11	V_{GG}	Output Gate Bias
2	$V_{\phi 3}$	V Registor Transfer Clock	12	V_{DSUB}	Bias
3	$V_{\phi 2}$	V Registor Transfer Clock	13	V_{SS}	Output Source
4	ϕSUB	Clock	14	GND	GND
5	GND	GND	15	GND	GND
6	$V_{\phi 1}$	V Registor Transfer Clock	16	RD	Reset Drain Clock
7	V_L	Protection Transistor Bias	17	ϕRG	Reset Gate Clock
8	GND	GND	18	NC	
9	V_{DD}	V_{DD}	19	$H_{\phi 1}$	H Registor Transfer Clock
10	V_{OUT}	Signal Output	20	$H_{\phi 2}$	H Registor Transfer Clock

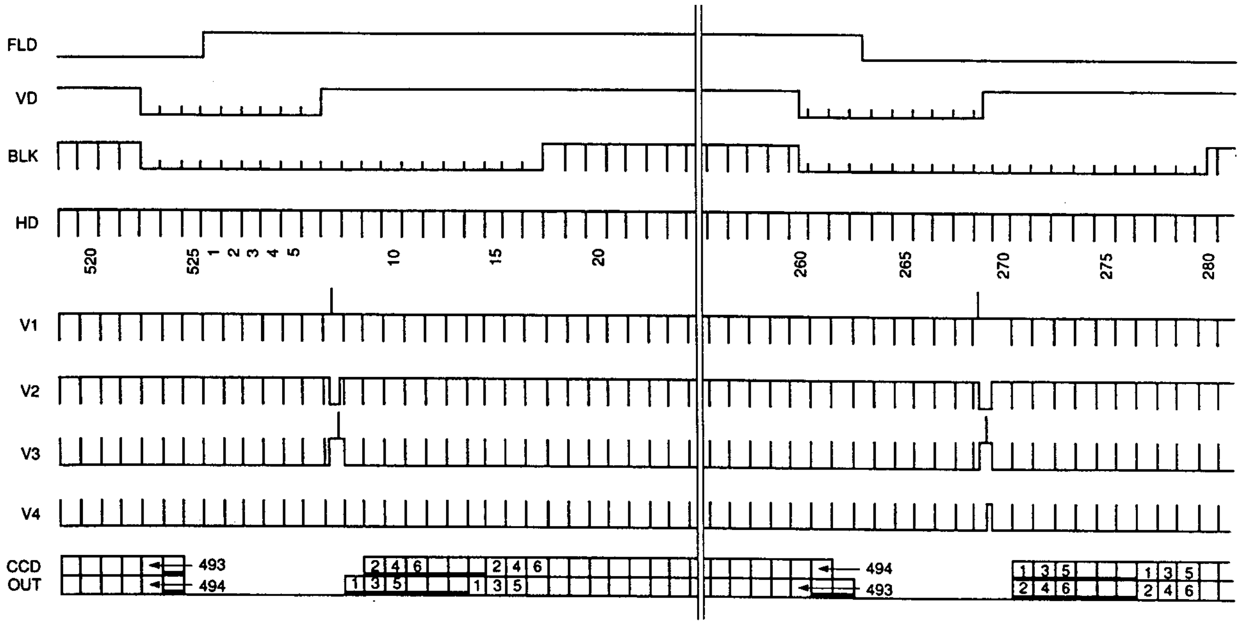
Spectral characteristics



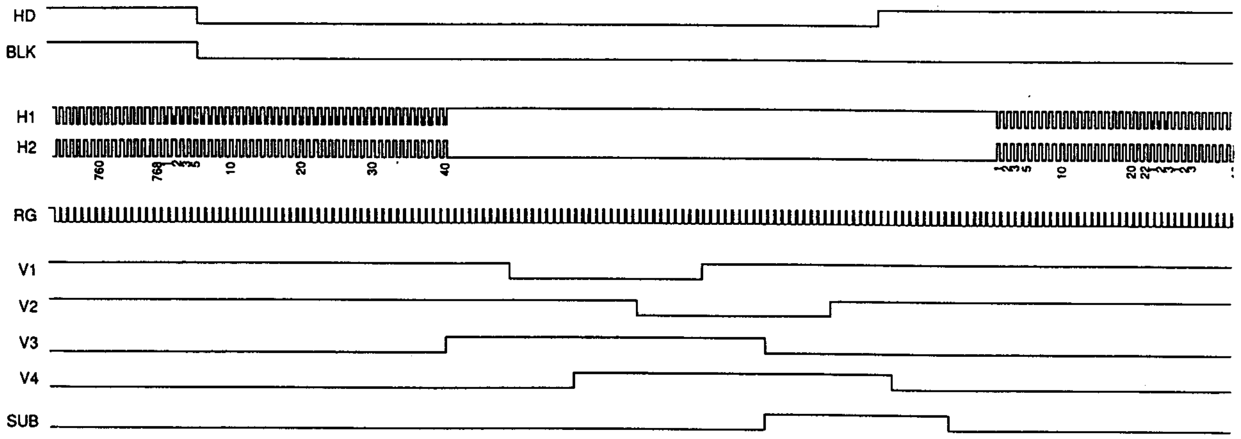
Timing chart



Timing chart (V Drive)

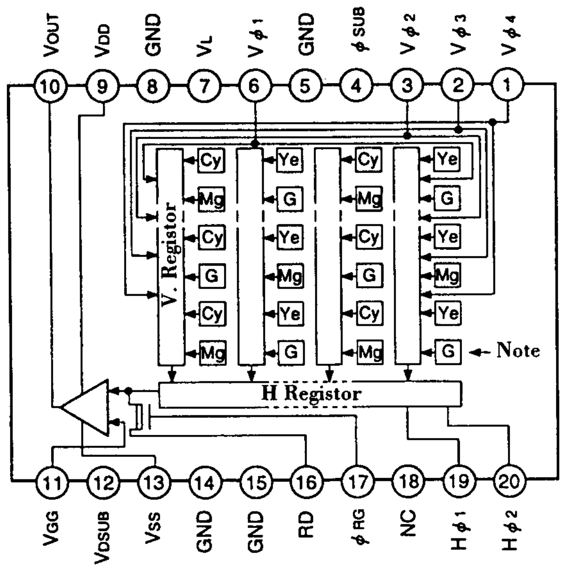


Timing chart (H Drive)



■ ICX039DNA-6 【SONY】
(1/2 Inch Color CCD Image Sensor for PAL System Sony)

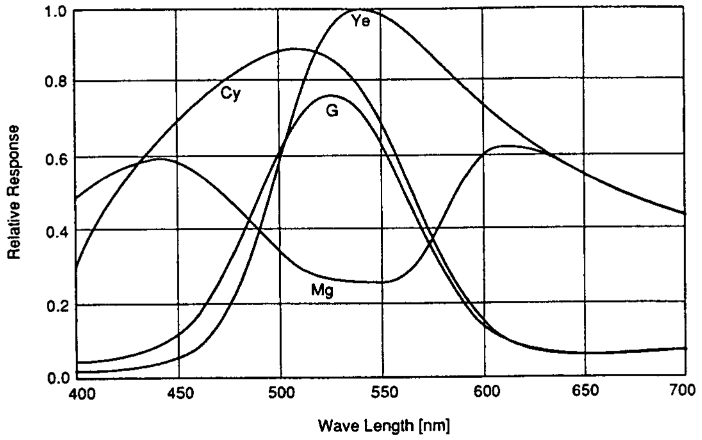
(Top View)


VOUT
VDD
GND
VL
Vϕ1
GND
ϕSUB
Vϕ2
Vϕ3
Vϕ4
10
9
8
7
6
5
4
3
2
1
Cy
Ye
Mg
G
V. Registor
H Registor
Note
11
12
13
14
15
16
17
18
19
20
VGG
VDSUB
VSS
GND
GND
RD
ϕRG
NC
Hϕ1
Hϕ2

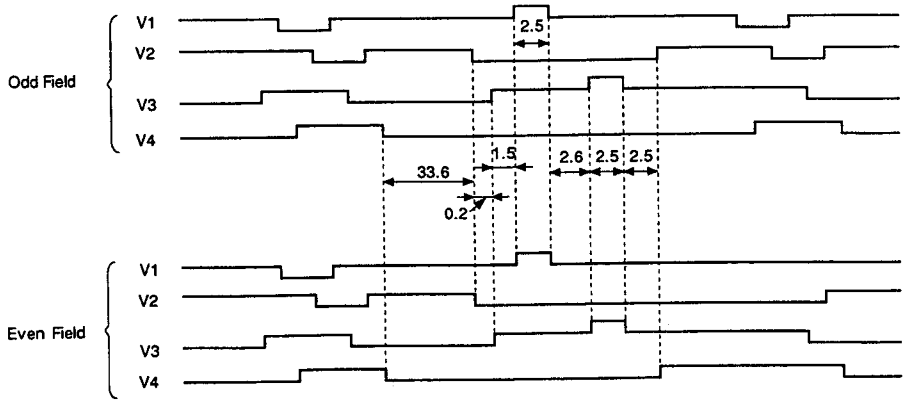
Note □: Photo Sensor

Pin No.	Name	Description	Pin No.	Name	Description
1	$V_{\phi 4}$	V Registor Transfer Clock	11	V_{GG}	Output Gate Bias
2	$V_{\phi 3}$	V Registor Transfer Clock	12	V_{DSUB}	Bias
3	$V_{\phi 2}$	V Registor Transfer Clock	13	V_{SS}	Output Source
4	ϕSUB	Clock	14	GND	GND
5	GND	GND	15	GND	GND
6	$V_{\phi 1}$	V Registor Transfer Clock	16	RD	Reset Drain Clock
7	V_L	Protection Transistor Bias	17	ϕRG	Reset Gate Clock
8	GND	GND	18	NC	
9	V_{DD}	V_{DD}	19	$H_{\phi 1}$	H Registor Transfer Clock
10	V_{OUT}	Signal Output	20	$H_{\phi 2}$	H Registor Transfer Clock

Spectral characteristics

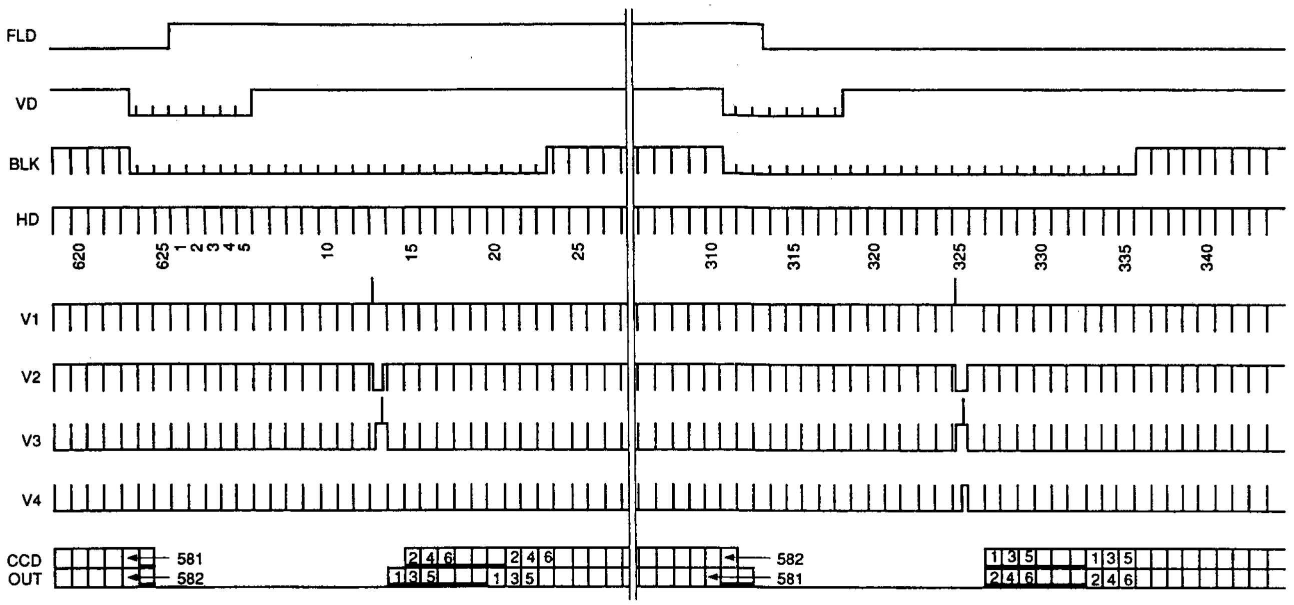


Timing chart

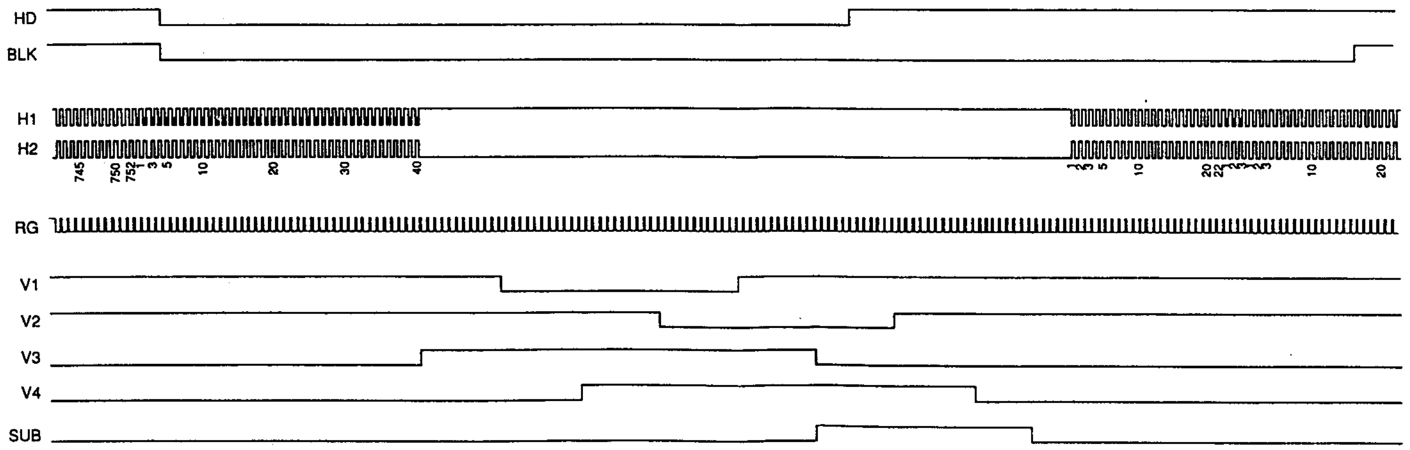

Odd Field
V1
V2
V3
V4
2.5
33.6
1.5
0.2
2.6
2.5
2.5
Even Field
V1
V2
V3
V4

Unit : μ s

Timing chart (V Drive)

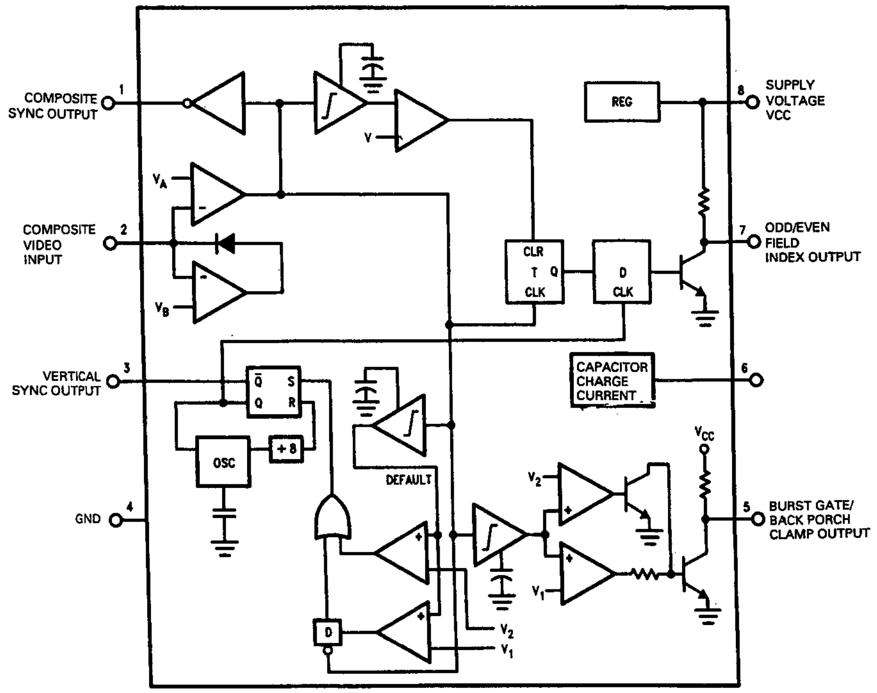

FLD
VD
BLK
HD
620
625
1
2
3
4
5
10
15
20
25
310
315
320
325
330
335
340
V1
V2
V3
V4
CCD OUT
581
582
2 4 6
1 3 5
582
581
1 3 5
2 4 6

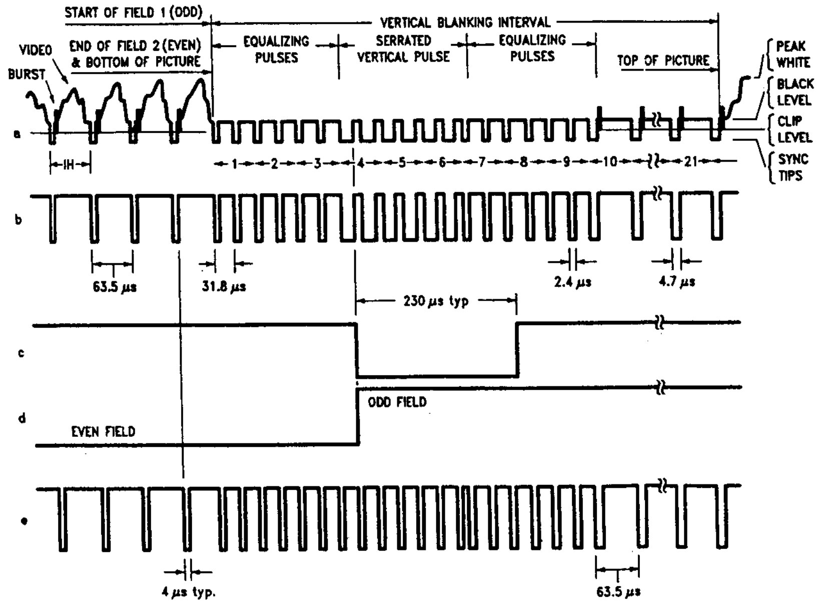
Timing chart (H Drive)


HD
BLK
H1
H2
745
750
752
1
3
5
10
20
30
40
1
3
5
10
20
22
1
3
5
10
20
RG
V1
V2
V3
V4
SUB

■ LM1881M-X 【National Semiconductor】

(Video Sync Separator)

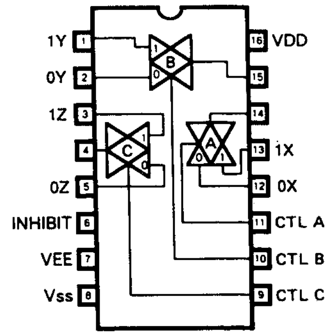

COMPOSITE SYNC OUTPUT
1
COMPOSITE VIDEO INPUT
2
VERTICAL SYNC OUTPUT
3
GND
4
REG
CLR
T Q
CLK
D
CLK
CAPACITOR CHARGE CURRENT
OSC
÷8
DEFAULT
V
VA
VB
V2
V1
VCC
8 SUPPLY VOLTAGE VCC
7 ODD/EVEN FIELD INDEX OUTPUT
6
5 BURST GATE/ BACK PORCH CLAMP OUTPUT



(a) Composite Video; (b) Composite Sync; (c) Vertical Output Pulse; (d) Odd/Even Field Index; (e) Burst Gate/Back Porch Clamp

■ MC14053BF-X 【MOTOROLA】

(Triple 2 Channel Analog Multiplexers/ Demultiplexers)


1Y 1
0Y 2
1Z 3
4
0Z 5
INHIBIT 6
VEE 7
Vss 8
16 VDD
15
14
13 1X
12 0X
11 CTL A
10 CTL B
9 CTL C
A
B
C

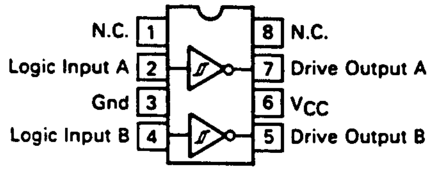
(TOP VIEW)

TRUTH TABLE

CONTROL INPUTS				"ON" CHANNEL
INHIBIT	C	B	A	4053BP 4053BF
L	L	L	L	0X, 0Y, 0Z
L	L	L	H	1X, 0Y,0Z
L	L	H	L	0X, 1Y, 0Z
L	L	H	H	1X, 1Y, 0Z
L	H	L	L	0X, 0Y, 1Z
L	H	L	H	1X, 0Y, 1Z
L	H	H	L	0X, 1Y, 1Z
L	H	H	H	1X, 1Y, 1Z
H	*	*	*	NOTE
* Don't Care,				

■ MC33151DR2 【MOTOROLA】

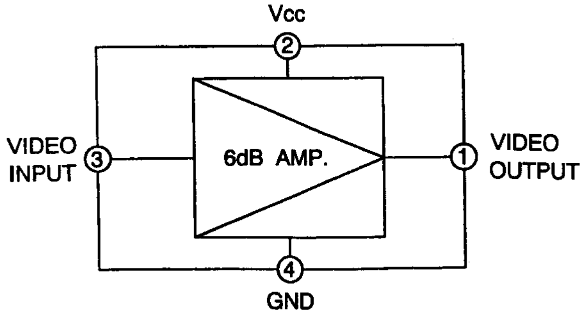
(Dual Inverting Driver)


N.C. 1
Logic Input A 2
Gnd 3
Logic Input B 4
8 N.C.
7 Drive Output A
6 Vcc
5 Drive Output B

(Top View)

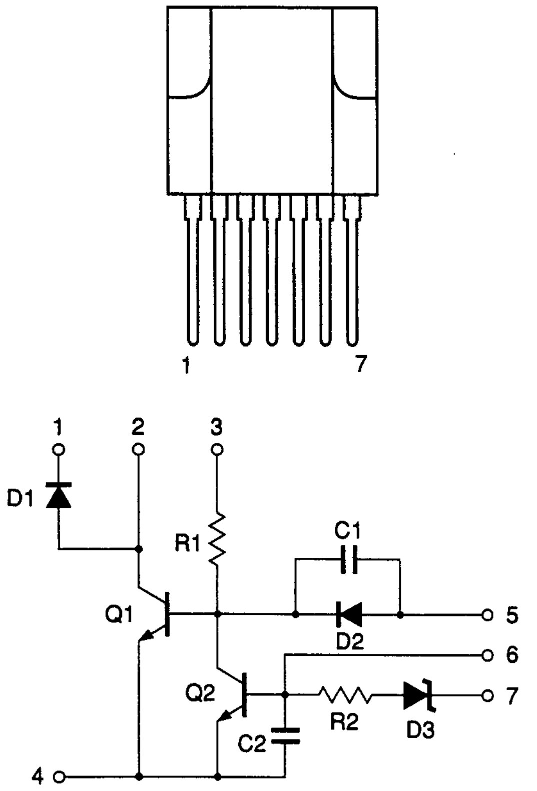
■ MM1031XM-X 【MITSUMI】

(6dB Amp.)


Vcc
2
VIDEO INPUT 3
6dB AMP.
1 VIDEO OUTPUT
4
GND

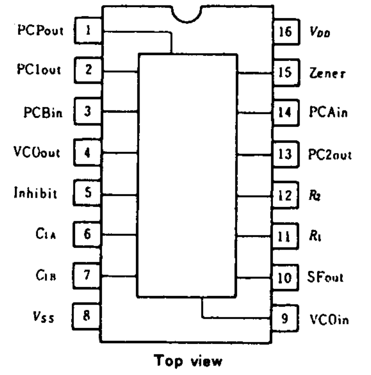
■ MA1040P(4100) 【SHINDENGEN】

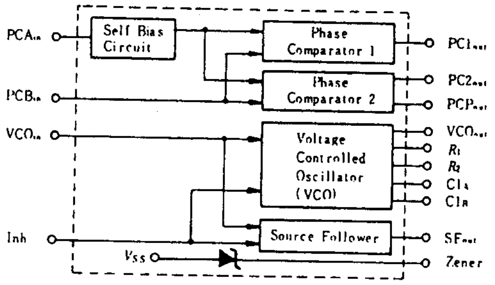
(Power Modul)


1
7
1
2
3
D1
R1
C1
Q1
D2
5
6
Q2
R2
D3
7
C2
4

■ MC14046BF-X 【MOTOROLA】

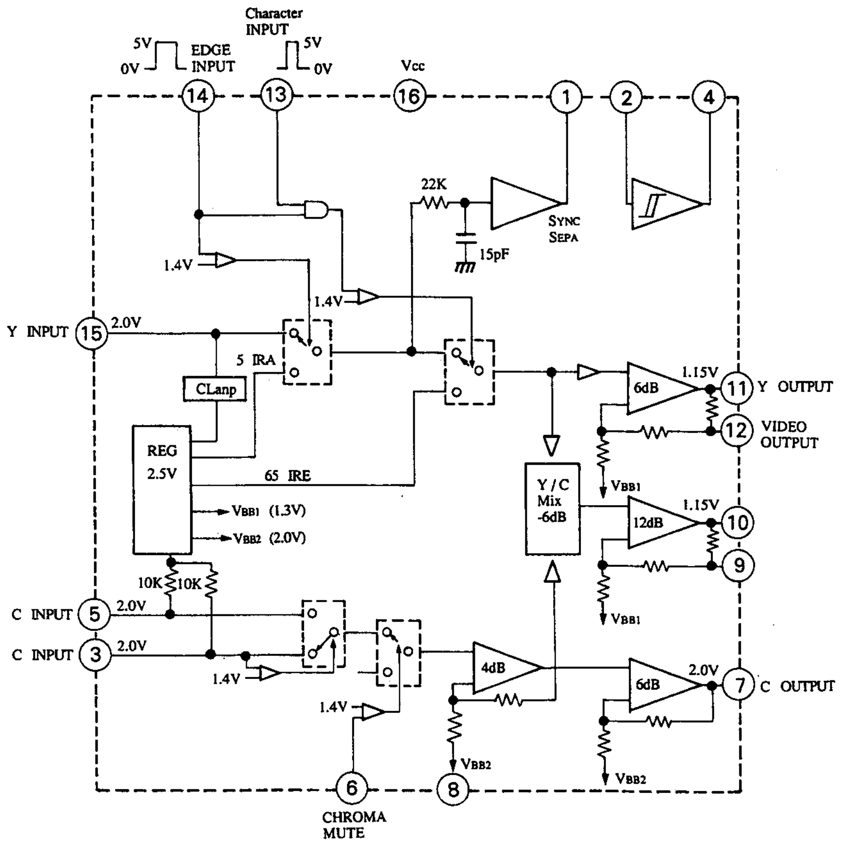
(Phase Locked Loop)


PCPout 1
PC1out 2
PCBin 3
VCOout 4
Inhibit 5
C1A 6
C1B 7
Vss 8
16 VDD
15 Zener
14 PCAin
13 PC2out
12 R2
11 R1
10 SFout
9 VCOin
Top view

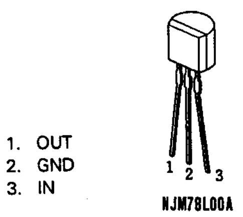

PCAin
PCBin
VCOin
Inh
Self Bias Circuit
Phase Comparator 1
Phase Comparator 2
Voltage Controlled Oscillator (VCO)
Source Follower
Vss
PC1out
PC2out
PCPout
VCOout
R1
R2
C1A
C1B
SFout
Zener

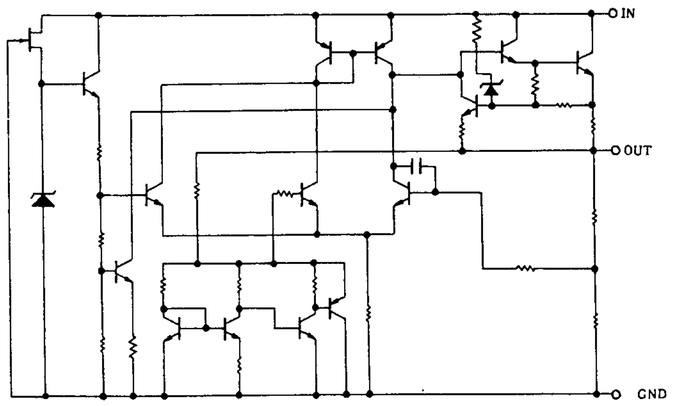
■ MM1024AF-W 【MITSUMI】

(Video Amp.)

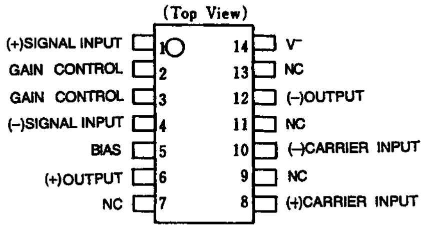

Character INPUT
5V
0V
EDGE INPUT
5V
0V
Vcc
14
13
16
1
2
4
22K
15pF
SYNC SEPA
1.4V
1.4V
Y INPUT 15
2.0V
5 IRA
CLamp
REG 2.5V
65 IRE
VBB1 (1.3V)
VBB2 (2.0V)
10K
10K
Y/C Mix -6dB
6dB
1.15V
11 Y OUTPUT
12 VIDEO OUTPUT
VBB1
12dB
1.15V
10
9
VBB1
C INPUT 5
2.0V
C INPUT 3
2.0V
1.4V
1.4V
4dB
6dB
2.0V
7 C OUTPUT
VBB2
VBB2
6
8
CHROMA MUTE

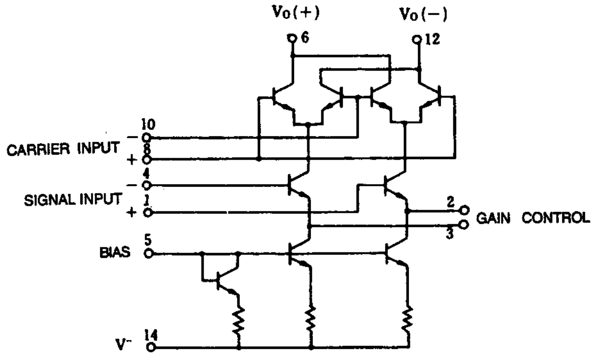
■ NJM78L15UA-X 【JRC】
(3-Terminal Positive Voltage Regulator (+15V))


1. OUT
2. GND
3. IN
1 2 3
NJM78L00A

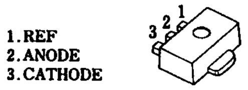


■ NJM1496M-X 【JRC】
(Balanced Modulator)

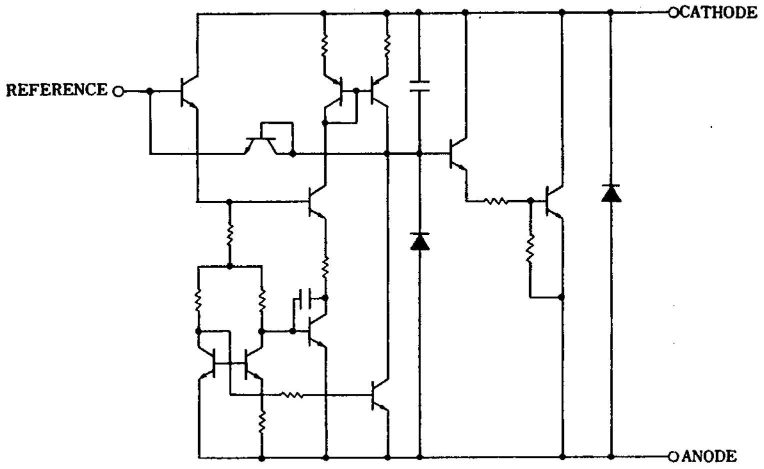

(Top View)
(+)SIGNAL INPUT 1
GAIN CONTROL 2
GAIN CONTROL 3
(-)SIGNAL INPUT 4
BIAS 5
(+)OUTPUT 6
NC 7
14 V⁻
13 NC
12 (-)OUTPUT
11 NC
10 (-)CARRIER INPUT
9 NC
8 (+)CARRIER INPUT


Vo(+) 6
Vo(-) 12
CARRIER INPUT 10 8
SIGNAL INPUT 4 1
BIAS 5
V⁻ 14
2 3 GAIN CONTROL

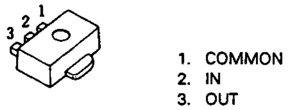
■ NJM431U-X 【JRC】
(Adjustable Precision Shunt Regulator)


1.REF
2.ANODE
3.CATHODE
3 2 1

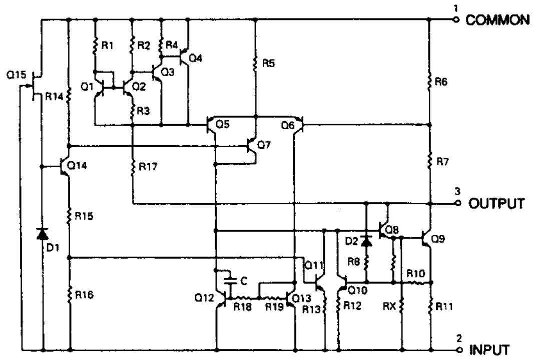
BLOCK DIAGRAM


CATHODE
REFERENCE
ANODE

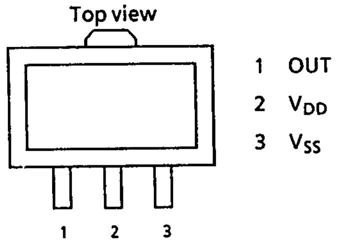
■ NJM79L09UA-X 【JRC】
(3-Terminal Negative Voltage Regulator (−9V))

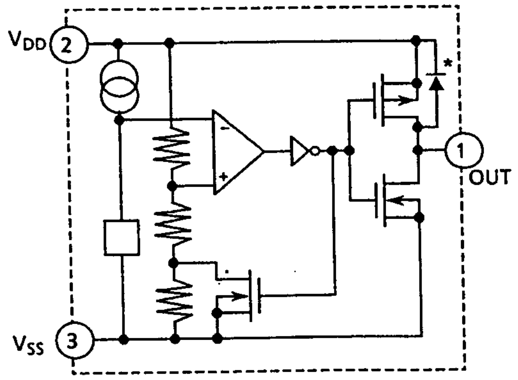

3 2 1
1. COMMON
2. IN
3. OUT

NJM79L00UA

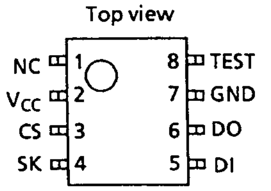

1 COMMON
3 OUTPUT
2 INPUT
Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Q11 Q12 Q13 Q14 Q15
R1 R2 R3 R4 R5 R6 R7 R8 R10 R11 R12 R13 R14 R15 R16 R17 R18 R19 RX
D1 D2 C

■ S-8054ALB-LM-X 【SEIKO INSTRUMENTS】
(C-MOS Voltage Detector)

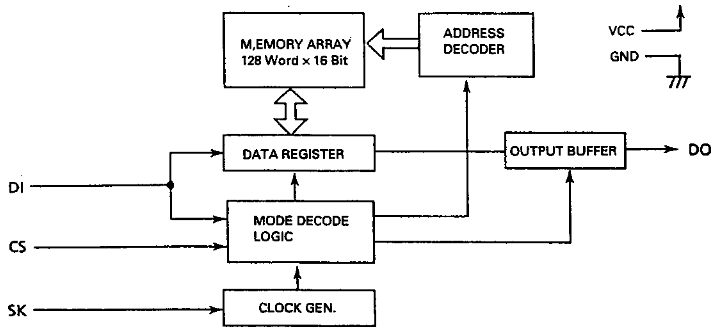

Top view
1 OUT
2 V_DD
3 V_SS
1 2 3


V_DD 2
V_SS 3
1 OUT
*

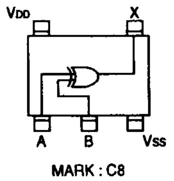
■ S-2924AIF10-W 【SEIKO INSTRUMENTS】
(CMOS 2K-bit Serial EE PROM)


Top view
NC 1
Vcc 2
CS 3
SK 4
8 TEST
7 GND
6 DO
5 DI

CS : Chip Select
SK : Serial Clock
DI : Serial Data Input
DO : Serial Data Output


M,EMORY ARRAY
128 Word × 16 Bit
ADDRESS DECODER
VCC
GND
DATA REGISTER
OUTPUT BUFFER
DO
DI
MODE DECODE LOGIC
CS
SK
CLOCK GEN.

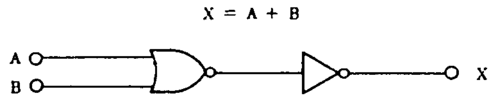
■ TC4S30F-W 【TOSHIBA】
(Single Exclusive OR Gate)

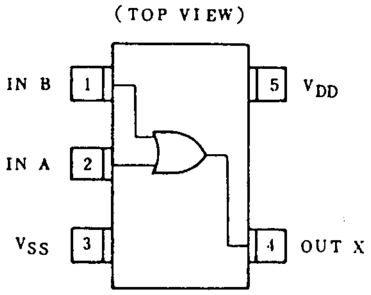

V_DD
X
A
B
Vss
MARK : C8

TRUE TABLE

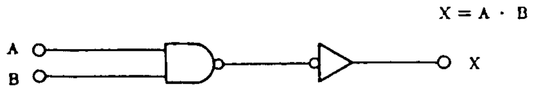
INPUT		OUTPUT
A	B	X
L	L	L
L	H	H
H	L	H
H	H	L

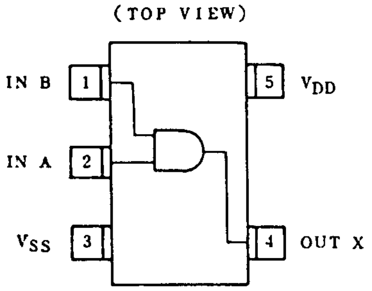
■ TC4S71F-X 【TOSHIBA】
(2-Input OR Gate)



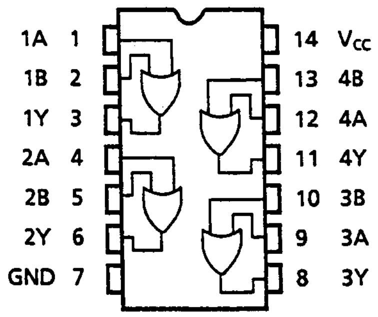

(TOP VIEW)
IN B 1
IN A 2
V_SS 3
5 V_DD
4 OUT X

■ TC4S81F-X 【TOSHIBA】
(2-Input AND Gate)




(TOP VIEW)
IN B 1
IN A 2
V_SS 3
5 V_DD
4 OUT X

■ TC74HC32AF-W 【TOSHIBA】
(Quad 2-Input OR Gates)

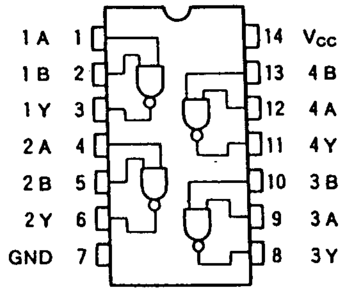

1A 1
1B 2
1Y 3
2A 4
2B 5
2Y 6
GND 7
14 Vcc
13 4B
12 4A
11 4Y
10 3B
9 3A
8 3Y

(TOP VIEW)

TRUE Table

A	B	Y
H	H	H
L	H	H
H	L	H
L	L	L

■ TC74VHC00FS-X 【TOSHIBA】
(Quad 2-Input NAND Gates)

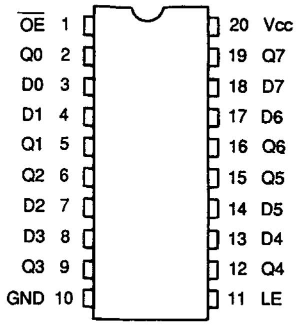

1A 1
1B 2
1Y 3
2A 4
2B 5
2Y 6
GND 7
14 Vcc
13 4B
12 4A
11 4Y
10 3B
9 3A
8 3Y

(TOP VIEW)

TRUE Table

A	B	Y
L	L	H
L	H	H
H	L	H
H	H	L

■ TC74VHC373FS-X 【TOSHIBA】
(Octal D-Type Latch with 3-State Output)

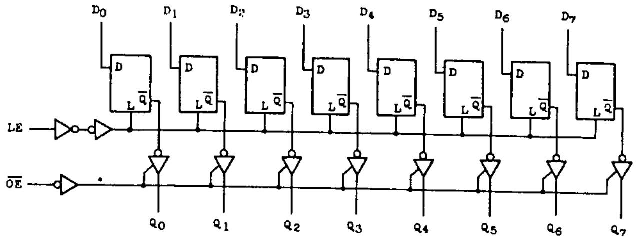

$\overline{OE}$ 1
Q0 2
D0 3
D1 4
Q1 5
Q2 6
D2 7
D3 8
Q3 9
GND 10
20 Vcc
19 Q7
18 D7
17 D6
16 Q6
15 Q5
14 D5
13 D4
12 Q4
11 LE

(Top View)

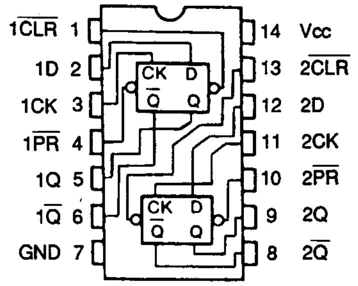
TRUE Table

INPUTS			OUTPUTS
$\overline{OE}$	LE	D	
H	X	X	Z
L	L	X	Q_n
L	H	L	L
L	H	H	H

X : Don't Care
Z : Hi impedance
Qn : Q output level before the LE become "L".


D0
D1
D2
D3
D4
D5
D6
D7
D
L
$\overline{Q}$
LE
$\overline{OE}$
Q0
Q1
Q2
Q3
Q4
Q5
Q6
Q7

■ TC74VHC74FS-X 【TOSHIBA】
(Dual D-Type Positive-EDGE-Triggered Flip-Flops With Preset AND Clear)


1$\overline{CLR}$ 1
1D 2
1CK 3
1$\overline{PR}$ 4
1Q 5
1$\overline{Q}$ 6
GND 7
14 Vcc
13 2$\overline{CLR}$
12 2D
11 2CK
10 2$\overline{PR}$
9 2Q
8 2$\overline{Q}$
CK
D
Q

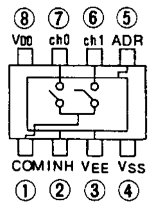
(Top View)

TRUE Table

INPUTS				OUTPUTS		FUNCTION
$\overline{CLR}$	$\overline{PR}$	D	CK	Q	$\overline{Q}$	
L	H	X	X	L	H	CLEAR
H	L	X	X	H	L	PRESET
L	L	X	X	H	H	—
H	H	L	↑	L	H	—
H	H	H	↑	H	L	—
H	H	X	↓	Q_n	$\overline{Q}_n$	NO CHANGE

X : Don't care

■ TC4W53F-X 【TOSHIBA】
(2-Channel Multiplexer)


⑧ ⑦ ⑥ ⑤
VDD ch0 ch1 ADR
COM INH VEE VSS
① ② ③ ④

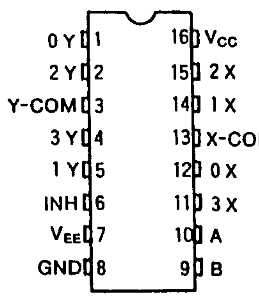
TRUE TABLE

CONTROL INPUT		ON CHANNEL
INH	ADR	
L	L	ch0
L	H	ch1
H	*	NONE

*Don't care

■ TC74HC4052AF-X 【TOSHIBA】
(Dual 4-Channel Analog Multiplexer)

TC74HC4052A


0Y 1
2Y 2
Y-COM 3
3Y 4
1Y 5
INH 6
VEE 7
GND 8
16 Vcc
15 2X
14 1X
13 X-COM
12 0X
11 3X
10 A
9 B

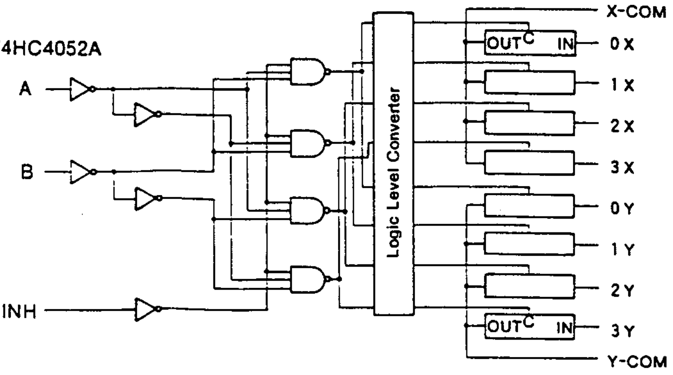
(TOP VIEW)

TRUE Table

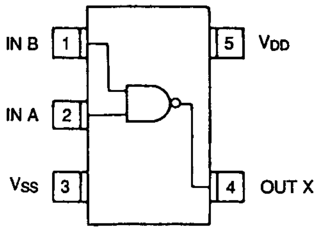
CONTROL INPUTS			"ON" CHANNEL
INHIBIT	B	A	HC4052A
L	L	L	0X, 0Y
L	L	H	1X, 1Y
L	H	L	2X, 2Y
L	H	H	3X, 3Y
H	X	X	NONE

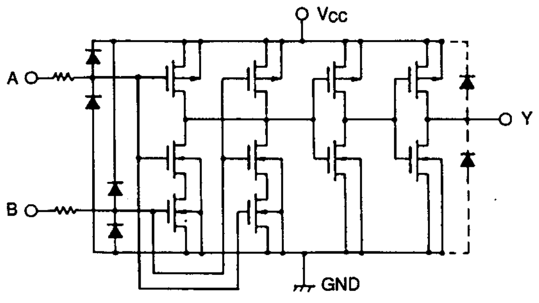
X : DON'T CARE

TC74HC4052A


A
B
INH
Logic Level Converter
OUT
C
IN
X-COM
0X
1X
2X
3X
0Y
1Y
2Y
3Y
Y-COM

■ TC7SH00FU-X 【TOSHIBA】
(2-Input NAND Gate)

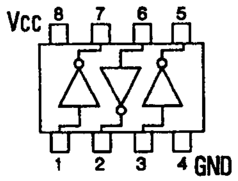

IN B 1
IN A 2
Vss 3
5 VDD
4 OUT X



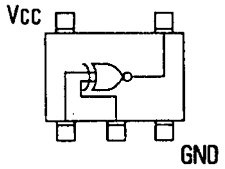
TRUE Table

A	B	X
L	L	H
L	H	H
H	L	H
H	H	L

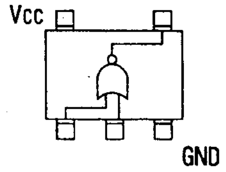
■ TC7WU04F-X 【TOSHIBA】
(Triple Unbuffered Inverter Gate)


Vcc 8 7 6 5
1 2 3 4 GND

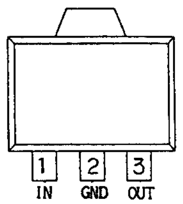
■ TC7SH86FU-X 【TOSHIBA】
(Single Exclusive OR Gate)

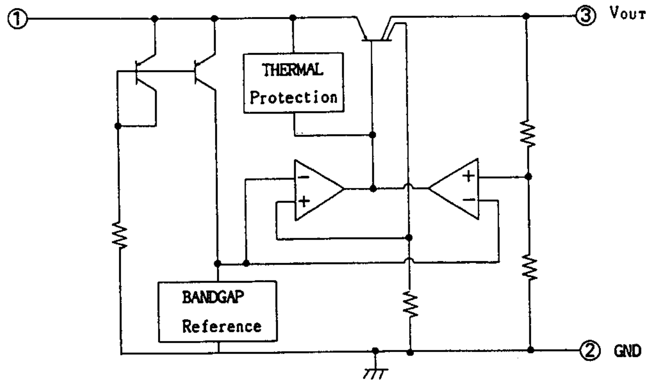


■ TC7S02F-X 【TOSHIBA】
(2 Input Single NOR Gate)

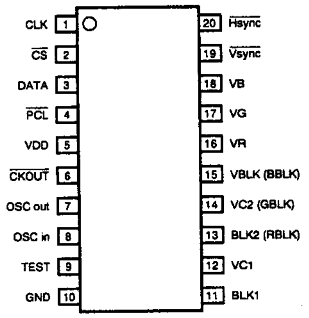


■ TK11650U-X 【TOKO】
(3-Terminal Positive Voltage Regulator)

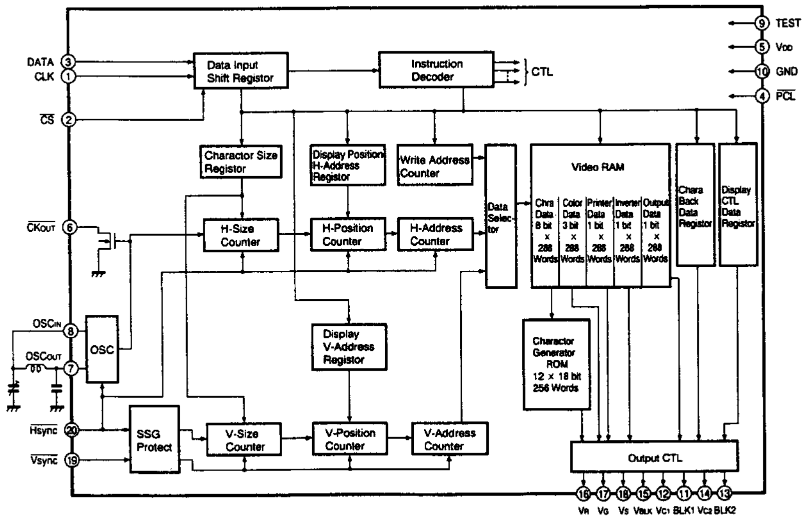

1
2
3
IN
GND
OUT


①
③ VOUT
THERMAL Protection
BANDGAP Reference
② GND

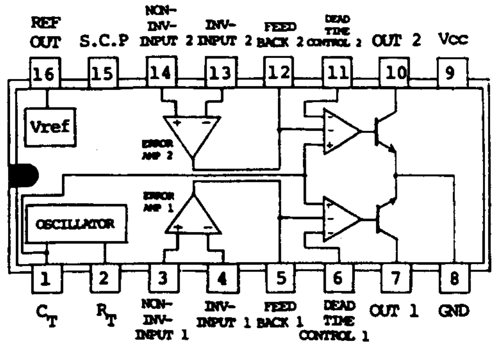
■ UPD6461GS-913 【NEC】
(On Screen Charactor Display)

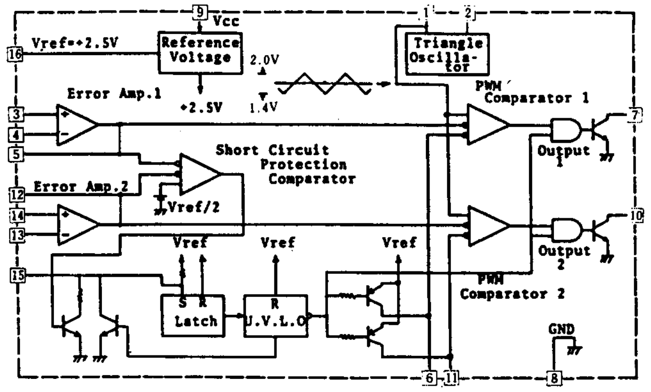

CLK 1
CS 2
DATA 3
PCL 4
VDD 5
CKOUT 6
OSC out 7
OSC in 8
TEST 9
GND 10
20 Hsync
19 Vsync
18 VB
17 VG
16 VR
15 VBLK (BBLK)
14 VC2 (GBLK)
13 BLK2 (RBLK)
12 VC1
11 BLK1

(Top View)


DATA ③
CLK ①
CS ②
CKOUT ⑥
OSCIN ⑧
OSCOUT ⑦
Hsync ⑳
Vsync ⑲
⑨ TEST
⑤ VDD
⑩ GND
④ PCL
Data Input Shift Registor
Instruction Decoder
CTL
Charactor Size Registor
Display Position H-Address Registor
Write Address Counter
Data Selector
Video RAM
Chra Data 8 bit x 288 Words
Color Data 3 bit x 288 Words
Printer Data 1 bit x 288 Words
Inverter Data 1 bit x 288 Words
Output Data 1 bit x 288 Words
Chara Back Data Registor
Display CTL Data Registor
H-Size Counter
H-Position Counter
H-Address Counter
OSC
Display V-Address Registor
Charactor Generator ROM 12 x 18 bit 256 Words
SSG Protect
V-Size Counter
V-Position Counter
V-Address Counter
Output CTL
⑯ VR
⑰ VG
⑱ VS
⑮ VBLK
⑫ VC1
⑪ BLK1
⑭ VC2
⑬ BLK2

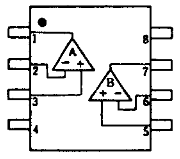
■ TL1451CNS-X 【TEXAS】
(Dual Switching Regulator Controller)


REF OUT
S.C.P
NON-INV-INPUT 2
INV-INPUT 2
FEED BACK 2
DEAD TIME CONTROL 2
OUT 2
Vcc
16
15
14
13
12
11
10
9
Vref
ERROR AMP 2
ERROR AMP 1
OSCILLATOR
1
2
3
4
5
6
7
8
CT
RT
NON-INV-INPUT 1
INV-INPUT 1
FEED BACK 1
DEAD TIME CONTROL 1
OUT 1
GND

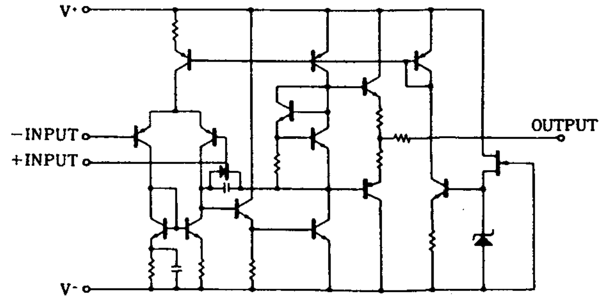

9 Vcc
16 Vref=+2.5V
Reference Voltage
2.0V
1.4V
+2.5V
Triangle Oscillator
1
2
Error Amp.1
3
4
5
Short Circuit Protection Comparator
Error Amp.2
12
14
13
Vref/2
PWM Comparator 1
Output 1
7
Output 2
10
PWM Comparator 2
15
Vref
S R Latch
R U.V.L.O
GND
6
11
8

■ UPC4558G2-W 【NEC】
(Dual Op.Amp)

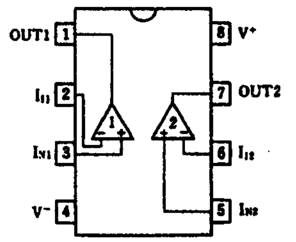
(Top View)

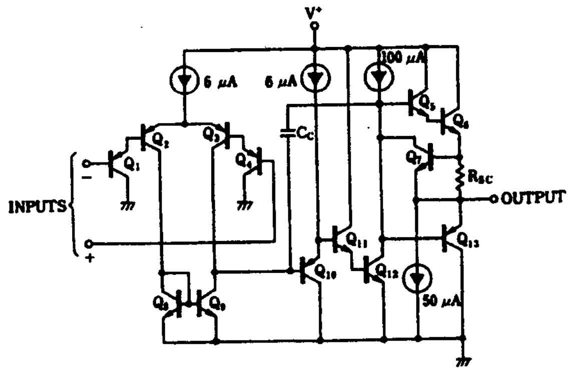

1
2
3
4
5
6
7
8
A
B

1. A OUTPUT
2. A−INPUT
3. A+INPUT
4. V⁻
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. V⁺

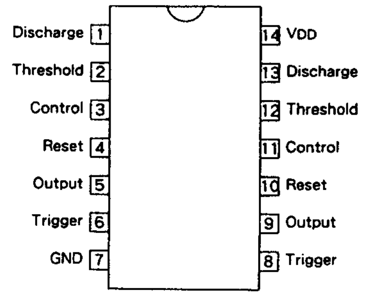

V⁺
−INPUT
+INPUT
OUTPUT
V⁻

■ UPC358G2-W 【NEC】
(Dual Op.Amp.)

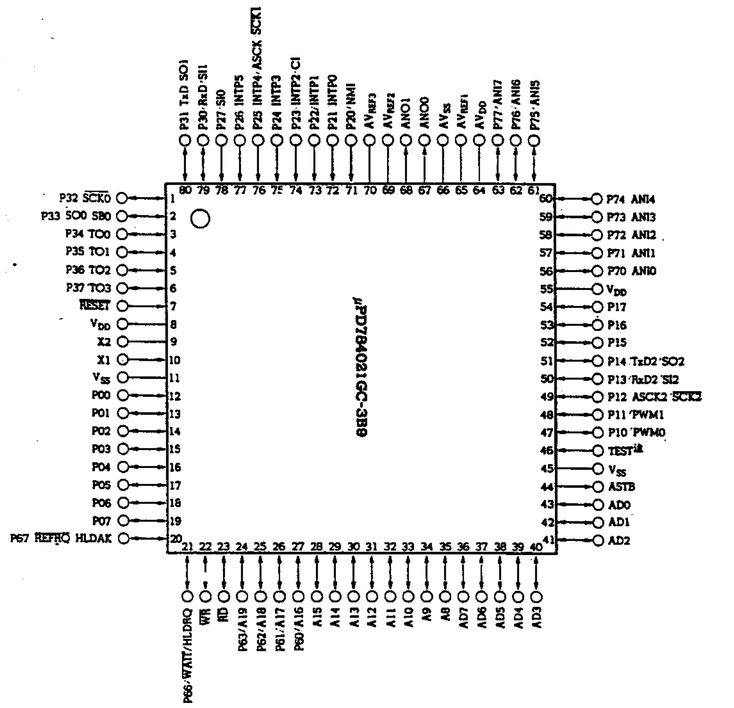

OUT1 1
IN1 2
IN1 3
V⁻ 4
8 V⁺
7 OUT2
6 IN2
5 IN2
1
2

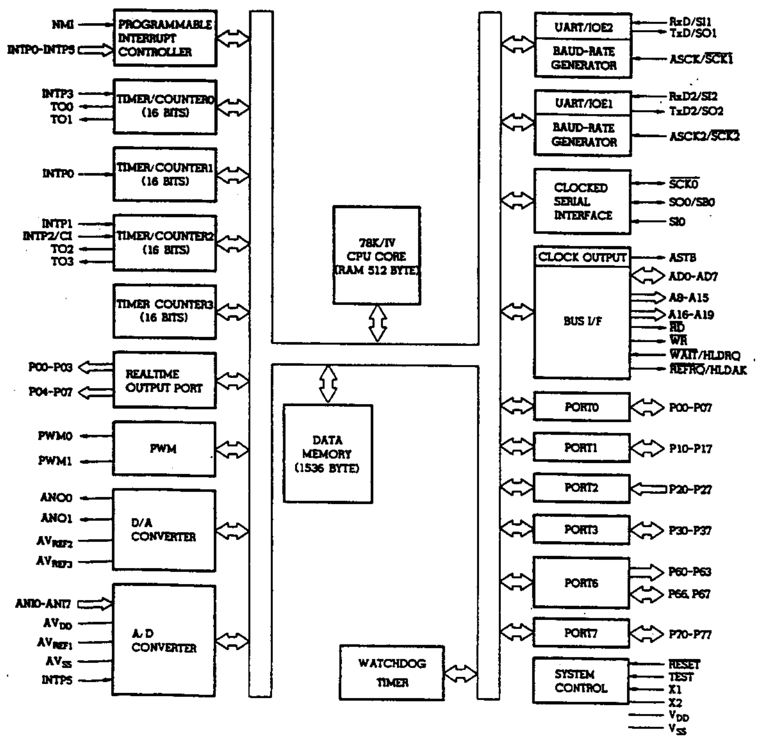

V⁺
6 μA
6 μA
100 μA
INPUTS
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
CC
RSC
OUTPUT
50 μA

■ UPD5556G-W 【NEC】
(CMOS Dual Timer)


Discharge 1
Threshold 2
Control 3
Reset 4
Output 5
Trigger 6
GND 7
14 VDD
13 Discharge
12 Threshold
11 Control
10 Reset
9 Output
8 Trigger

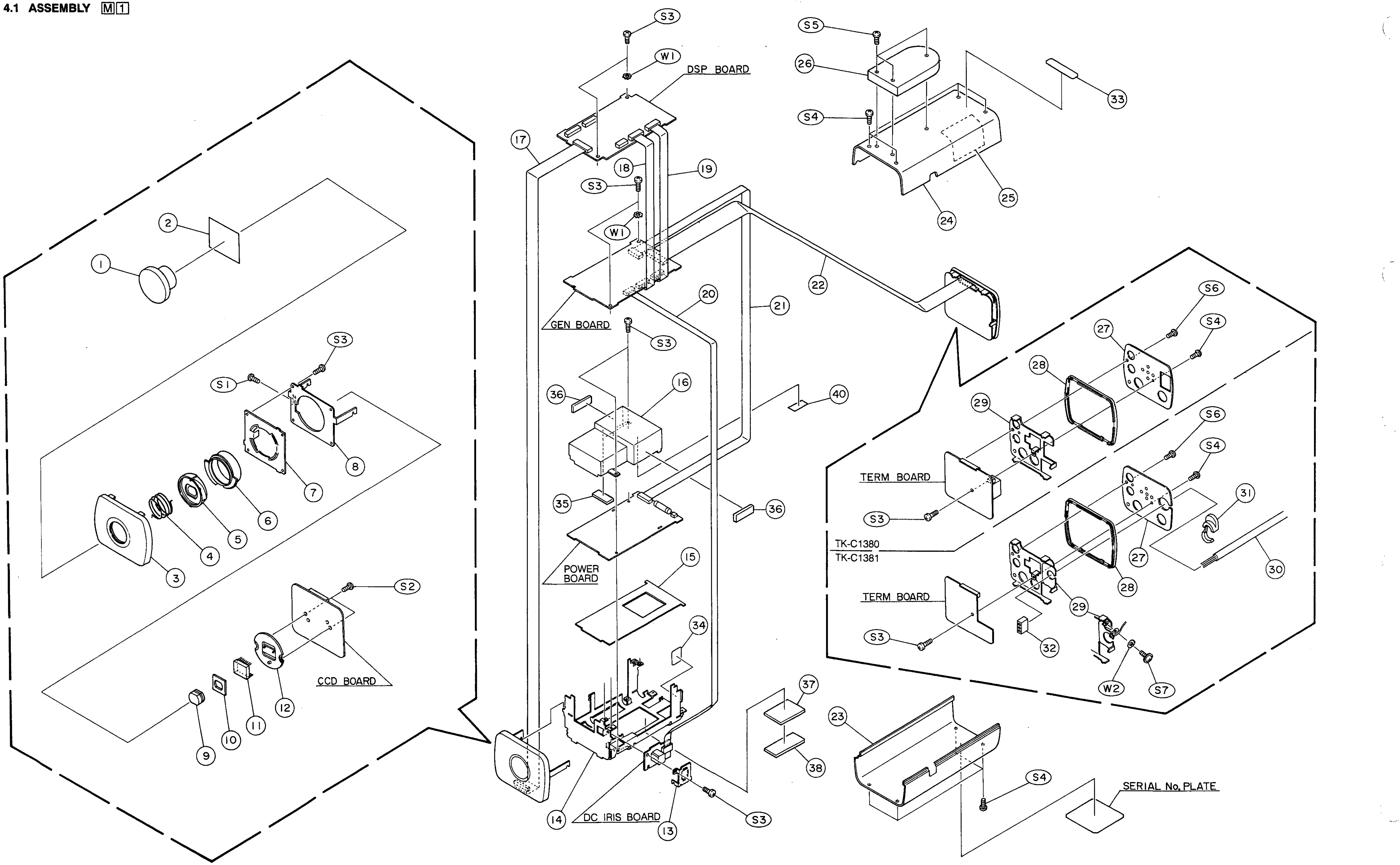
■ UPD784021GC 【NEC】
(16 Bit Microcomputer)


μPD784021GC-3B9
1 P32 SCK0
2 P33 SO0 SB0
3 P34 TO0
4 P35 TO1
5 P36 TO2
6 P37 TO3
7 RESET
8 VDD
9 X2
10 X1
11 VSS
12 P00
13 P01
14 P02
15 P03
16 P04
17 P05
18 P06
19 P07
20 P67 REFRQ HLDAK
21 P66/WAIT/HLDRQ
22 WR
23 RD
24 P63/A19
25 P62/A18
26 P61/A17
27 P60/A16
28 A15
29 A14
30 A13
31 A12
32 A11
33 A10
34 A9
35 A8
36 AD7
37 AD6
38 AD5
39 AD4
40 AD3
41 AD2
42 AD1
43 AD0
44 ASTB
45 VSS
46 TEST
47 P10 PWM0
48 P11 PWM1
49 P12 ASCK2 SCK2
50 P13 RxD2 SI2
51 P14 TxD2 SO2
52 P15
53 P16
54 P17
55 VDD
56 P70 ANI0
57 P71 ANI1
58 P72 ANI2
59 P73 ANI3
60 P74 ANI4
61 P75 ANI5
62 P76 ANI6
63 P77 ANI7
64 AVDD
65 AVREF1
66 AVSS
67 ANO0
68 ANO1
69 AVREF2
70 AVREF3
71 P20 NMI
72 P21 INTP0
73 P22/INTP1
74 P23 INTP2 CI
75 P24 INTP3
76 P25 INTP4 ASCK SCK1
77 P26 INTP5
78 P27 SI0
79 P30 RxD SI1
80 P31 TxD SO1


NMI
INTP0-INTP5
PROGRAMMABLE INTERRUPT CONTROLLER
INTP3
TO0
TO1
TIMER/COUNTER0 (16 BITS)
INTP0
TIMER/COUNTER1 (16 BITS)
INTP1
INTP2/CI
TO2
TO3
TIMER/COUNTER2 (16 BITS)
TIMER COUNTER3 (16 BITS)
P00-P03
P04-P07
REALTIME OUTPUT PORT
PWM0
PWM1
PWM
ANO0
ANO1
AVREF2
AVREF3
D/A CONVERTER
ANI0-ANI7
AVDD
AVREF1
AVSS
INTP5
A/D CONVERTER
78K/IV CPU CORE (RAM 512 BYTE)
DATA MEMORY (1536 BYTE)
WATCHDOG TIMER
UART/IOE2
BAUD-RATE GENERATOR
RxD/SI1
TxD/SO1
ASCK/SCK1
UART/IOE1
BAUD-RATE GENERATOR
RxD2/SI2
TxD2/SO2
ASCK2/SCK2
CLOCKED SERIAL INTERFACE
SCK0
SO0/SB0
SI0
CLOCK OUTPUT
BUS I/F
ASTB
AD0-AD7
A8-A15
A16-A19
RD
WR
WAIT/HLDRQ
REFRQ/HLDAK
PORT0
P00-P07
PORT1
P10-P17
PORT2
P20-P27
PORT3
P30-P37
PORT6
P60-P63
P66, P67
PORT7
P70-P77
SYSTEM CONTROL
RESET
TEST
X1
X2
VDD
VSS

SECTION 4
EXPLODED VIEW AND PARTS LIST

4.1 ASSEMBLY M 1


S3
W1
DSP BOARD
S5
26
33
S4
17
18
19
S3
W1
25
24
2
1
22
20
21
GEN BOARD
S3
S3
S1
16
36
40
S6
27
S4
28
29
8
7
6
5
4
3
35
36
POWER BOARD
TERM BOARD
S3
S6
S4
31
TK-C1380
TK-C1381
27
30
28
TERM BOARD
29
S3
32
15
S2
34
CCD BOARD
12
11
10
9
37
38
23
W2
S7
S4
SERIAL No. PLATE
14
DC IRIS BOARD
13
S3

4.2 ASSEMBLY LIST M 1

M 1 M M ☐ ☐ ☐ ☐

Symbol No.	Part No.	Part Name	Description
1	A38305	CAP	
2	SC40286-001	SHEET	
3	SC20644-001	FRONT FRAME	
4	SC45590-001	SPRING	
5	SC20646-001	SENSOR BASE	
6	SC31798-001	ADJUST RING	
7	SC46009-001	LEAF SPRING	
8	SC32070-001	HOLDER PLATE	
9	CE42204-A0A	LOWPASS FILTER	
10	SC46024-001	SENSOR MASK	
11	ICX038DNA-6	CCD IMAGE SENSOR	for NTSC
11	ICX039DNA-6	CCD IMAGE SENSOR	for PAL
12	SC32072-001	SENSOR HOLDER	
13	SC46022-001	CN HOLDER	
14	SC20645-001	CHASSIS	
15	SC46026-001	SHIELD PLATE	
16	SC20647-001	SHIELD CASE	
⚠ 17	SCV2803-3006B	FFC CABLE	CCD to DSP
⚠ 18	SCV2803-3003B	FFC CABLE	DSP to GEN
⚠ 19	SCV2803-2403B	FFC CABLE	DSP to GEN
⚠ 20	SSV2622-0603A	FFC CABLE	GEN to DC IRIS
⚠ 21	SSV2622-1003B	FFC CABLE	GEN to POWER
⚠ 22	SSV2622-2004B	FFC CABLE	GEN to TERM
23	SC32066-001	TOP COVER	
24	SC32067-002	BOTTOM COVER	for TK-C1380U
24	SC32067-003	BOTTOM COVER	for TK-C1380E
24	SC32067-005	BOTTOM COVER	for TK-C1381EG
25	SC45564-001	SHEET	
26	SC20601-00A	TRIPOD BASE	
27	SC32069-002	REAR PANEL	for TK-C1380U
27	SC32069-003	REAR PANEL	for TK-C1380E
27	SC32069-005	REAR PANEL	for TK-C1381EG
28	SC32068-001	ESCUTCHEON	
29	SC32071-001	TERMINAL BRACKT	for TK-C1380
29	SC32071-003	TERMINAL BRACKT	for TK-C1381EG
⚠ 30	SCV2317-001	POWER CORD	for TK-C1381EG
31	QHS6374-162	STARIN RELIEF	for TK-C1381EG
32	SCV1731-003	CONNECTOR	for TK-C1381EG
33	SS48371-001	LABEL	for TK-C1381EG
34	SC45456-001	LABEL	for TK-C1380U
36	SC45834-001	SHEET 1	for TK-C1381EG
37	SC45834-002	SHEET 2	
38	SC45834-003	SHEET 3	
39	SC45834-004	SHEET 4	
40	SC46065-001	SHEET 5	except TK-C1381EG
S1	SPSP2610N	SCREW	M2.6×10
S2	SDSF2005M	SCREW	M2×5
S3	SDSP2004N	SCREW	M2×4
S4	SPSK2040R	SCREW	M2×4
S5	SPSP2605N	SCREW	M2.6×5
S6	SDSF2606M	SCREW	M2.6×6
S7	DPSP4008Z	SCREW	M4×8 for TK-C1381EG
W1	WBS2000Z	WASHER	
W2	WBS4000N	WASHER	for TK-C1381EG

SECTION 5
ELECTRICAL PARTS LIST

SAFETY PRECAUTION:
Parts identified by the ⚠ symbol are critical for safety. Replace only with specified parts numbers.
For maximum reliability and performance, all other replacement parts should be identical to those specified.

NOTE:

- Parts not denoted by parts numbers are not supplied by JVC.
- Abbreviations in this list are as follows:

RESISTORS

In the "Description" column:
All resistance values are in ohms (Ω).
K expresses kilo-ohm (1,000 ohms, kΩ).
M expresses mega-ohm (10^6 ohms, MΩ).

In the "Parts Name" column:

COMP. RESISTOR	Composition Resistor
U.F. RESISTOR	Non-inflammable Resistor
O.M.F. RESISTOR	Oxide Metalized Film Resistor
FUSI. RESISTOR	Fusible Resistor
M.P. RESISTOR	Metal Plate Resistor
M.G. RESISTOR	Metal Graze Resistor
M.F. RESISTOR	Metal Film Resistor
W.W. RESISTOR	Wire Wound Resistor

CAPACITORS

In the "Description" column:
All capacitance values are in microfarad (μF) unless otherwise indicated.
P expresses picofarad (10^{-12} farad, pF).

In the "Parts Name" column:

TRIM. CAPACITOR	Trimmer Capacitor
CER. CAPACITOR	Ceramic Capacitor
E. CAPACITOR	Electrolytic Capacitor
TAN. CAPACITOR	Tantalum Capacitor
MPP CAPACITOR	Metalized Polypropylene Capacitor
O.F. CAPACITOR	Oil Film Capacitor
MPF CAPACITOR	Metalized Polyfilm Capacitor
F.M. CAPACITOR	Film Mica Capacitor
P.P. CAPACITOR	Polypropylene Capacitor
P.S. CAPACITOR	Polystyrene Capacitor

Note: In the "Description" column of the parts list, (U) means the parts for the U version while (E) is for the E Version.

Symbol No.	Part No.	Part Name	Description	
IC1	SCV1585-064	I.C.(M)	JVC (U)	← **for U version**
	SCV1585-067	I.C.(M)	JVC (E)	← **for E version**

Note :
The electrical parts numbers listed on the manual are organized by new JVC standard parts system. The new parts numbers are different from previous numbers, even if the components are same.

5.1 CCD BOARD ASSEMBLY LIST 01
SCK2474-01-A0A (U)
SCK2474-01-C0A (E) 01☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
SK100	CEMS014-020Z	IC SOCKET	20PIN for IC100
IC101	CXD1267AN-T4	I.C.(M)	SONY
IC102	HA118184F	I.C.(M)	HITACHI
IC103	TK11650U-X	I.C.(M)	TOKO
Q101	MSC3930/B/-X	TRANSISOR	MOTOROLA
Q102	MSB1218A/R/-X	TRANSISOR	MOTOROLA
Q103	MSB1218A/R/-X	TRANSISOR	MOTOROLA
Q106	2SA1610/3-4/-W	TRANSISOR	NEC
Q107	2SC4176/4-5/-W	TRANSISOR	NEC
Q108	2SA1610/3-4/-W	TRANSISOR	NEC
Q109	2SC4176/4-5/-W	TRANSISOR	NEC
D102	MA142WK-X	DIODE	MATSUSHITA
D104	1SS357-X	DIODE	TOSHIBA
D105	MA142WK-X	DIODE	MATSUSHITA
D106	MA142WK-X	DIODE	MATSUSHITA
D107	MA142K-W	DIODE	MATSUSHITA
D108	MA142K-W	DIODE	MATSUSHITA
D109	MA142K-W	DIODE	MATSUSHITA
D110	MA142K-W	DIODE	MATSUSHITA
R100	NRSA63J-273X	M.G.RESISTOR	27k 1/16W
R101	NRSA63J-184X	M.G.RESISTOR	180k 1/16W
R104	NRSA63J-391X	M.G.RESISTOR	390 1/16W
R105	NRSA63J-100X	M.G.RESISTOR	10 1/16W
R113	NRSA63J-101X	M.G.RESISTOR	100 1/16W
R114	NRSA63J-392X	M.G.RESISTOR	3.9k 1/16W
R116	NRSA63J-104X	M.G.RESISTOR	100k 1/16W
R117	NRSA63J-105X	M.G.RESISTOR	1M 1/16W
R118	NRSA63J-103X	M.G.RESISTOR	10k 1/16W
R119	NRSA63J-393X	M.G.RESISTOR	39k 1/16W
R120	NRSA63J-223X	M.G.RESISTOR	22k 1/16W
R135	NRSA63J-102X	M.G.RESISTOR	1k 1/16W
R136	NRSA63J-102X	M.G.RESISTOR	1k 1/16W
R137	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R138	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R139	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R140	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R141	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R142	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R143	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R144	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R145	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R146	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R147	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R148	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R149	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R150	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
C100	NBE61VM-156X	TAN.CAPACITOR	15 35V
C101	NBE21CM-105X	TAN.CAPACITOR	1 16V
C102	NEE50JM-476NY	E.CAPACITOR	47 6.3V
C103	NCF31HZ-473X	CER.CAPACITOR	0.047 50V
C104	NCB31HK-103X	CER.CAPACITOR	0.01 50V
C109	NCF31HZ-473X	CER.CAPACITOR	0.047 50V
C110	NEE51VM-335NY	E.CAPACITOR	3.3 35V

Symbol No.	Part No.	Part Name	Description
C111	NBE41CM-156X	TAN.CAPACITOR	15 16V
C112	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C114	NBE61VM-156X	TAN.CAPACITOR	15 35V
C115	NCF31HZ-473X	CER.CAPACITOR	0.047 50V
C120	NBE41CM-156X	TAN.CAPACITOR	15 16V
C121	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C122	NEF11HM-105RZ	E.CAPACITOR	1 50V
C123	NBE21CM-105X	TAN.CAPACITOR	1 16V
C125	NCB31HK-222X	CER.CAPACITOR	2200P 50V
C128	NDC31HJ-220X	CER.CAPACITOR	22P 50V
C129	NEE51AM-336NY	E.CAPACITOR	33 10V
C130	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C131	NBE21CM-105X	TAN.CAPACITOR	1 16V
C132	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C133	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C134	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C135	NEE51AM-336NY	E.CAPACITOR	33 10V
C136	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C137	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C138	NEE51AM-336NY	E.CAPACITOR	33 10V
C139	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C140	NEE51AM-336NY	E.CAPACITOR	33 10V
C141	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C142	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C143	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C144	NEE51AM-336NY	E.CAPACITOR	33 10V
C145	NBE41CM-156X	TAN.CAPACITOR	15 16V
C146	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C147	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C148	NEE51AM-336NY	E.CAPACITOR	33 10V
C149	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C150	NBE51CM-336X	TAN.CAPACITOR	33 16V
C151	NEE51AM-336NY	E.CAPACITOR	33 10V
C152	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C155	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C157	NEE51AM-336NY	E.CAPACITOR	33 10V
C158	NDC31HJ-270X	CER.CAPACITOR	27P 50V
C159	NDC31HJ-270X	CER.CAPACITOR	27P 50V
C160	NDC31HJ-270X	CER.CAPACITOR	27P 50V
C161	NDC31HJ-270X	CER.CAPACITOR	27P 50V
C162	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C163	NBE51CM-226X	TAN.CAPACITOR	22 16V
C164	NCB21EK-104X	CER.CAPACITOR	0.1 25V
CN1	SSV2614-30	CONNECTOR	30PIN
CN11	SCV1770-002	CONNECTOR	2PIN
TP102	SCV1880-001	TEST POINT	
TP103	SCV1880-001	TEST POINT	

5.2 DSP BOARD ASSEMBLY LIST 02
SCK2475-01-B0A (U)
SCK2475-01-C0A (E) 02☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
IC200	HD49319F	I.C.(M)	HITACHI
IC201	HD49811TFA	I.C.(M)	HITACHI
IC203	TK11650U-X	I.C.(M)	TOKO
IC204	AN8002M-W	I.C.(M)	MATSUSHITA
IC205	UPC358G2-W	I.C.(M)	NEC
IC206	TC7WU04F-X	I.C.(M)	TOSHIBA
IC207	TC7WU04F-X	I.C.(M)	TOSHIBA
IC208	TK11650U-X	I.C.(M)	TOKO
IC300	TC74VHC74FS-X	I.C.(M)	TOSHIBA
IC301	UPD6461GS-913	I.C.(M)	NEC
IC302	TC7SH00FU-X	I.C.(M)	TOSHIBA
IC303	TC7SH86FU-X	I.C.(M)	TOSHIBA
IC304	TC74VHC00FS-X	I.C.(M)	TOSHIBA
IC305	UPD784021GC	I.C.(M)	NEC
IC306	S-8054ALB-LM-X	I.C.(M)	SEIKO
IC307	S-2924AIF10-W	I.C.(M)	SEIKO
IC310	TC74VHC373FS-X	I.C.(M)	TOSHIBA
IC311	PLSC1163	I.C.(M)	M28F512-12C1 (U)
IC311	PLSC1163	I.C.(M)	M28F512-12C1 (E)
SK311	SCV2768-001X	IC SOCKET	
IC312	TC7SH00FU-X	I.C.(M)	TOSHIBA
Q200	2SA1532/BC/-X	TRANSISOR	MATSUSHITA
Q201	2SA1532/BC/-X	TRANSISOR	MATSUSHITA
Q202	2SK662/QR/-X	FET	MATSUSHITA
Q203	2SB956/R/-W	TRANSISOR	MATSUSHITA
Q300	MSD1819A/R/-X	TRANSISOR	MOTOROLA
Q301	MSD1819A/R/-X	TRANSISOR	MOTOROLA
Q302	MSD1819A/R/-X	TRANSISOR	MOTOROLA
Q305	MSC3930/B/-X	TRANSISOR	MOTOROLA
Q306	MSC3930/B/-X	TRANSISOR	MOTOROLA
Q307	2SC4176/4-5/-X	TRANSISOR	NEC
D200	HVU306A5-W	V.C.DIODE	HITACHI
D201	HVU306A5-W	V.C.DIODE	HITACHI
D202	HVU306A5-W	V.C.DIODE	HITACHI
D203	HVU306A5-W	V.C.DIODE	HITACHI
D300	MA142WK-X	DIODE	MATSUSHITA
D301	MA142WK-X	DIODE	MATSUSHITA
R200	NRSA63J-222X	M.G.RESISTOR	2.2k 1/16W
R201	NRSA63J-152X	M.G.RESISTOR	1.5k 1/16W
R202	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R203	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R204	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R205	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R206	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R207	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R208	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R209	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R210	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R211	NRSA63J-101X	M.G.RESISTOR	100 1/16W
R212	NRSA63J-104X	M.G.RESISTOR	100k 1/16W
R213	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R214	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R215	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R216	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R217	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R218	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R219	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R220	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R229	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R230	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R231	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R232	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R233	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R234	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R235	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R236	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R245	NRSA63J-222X	M.G.RESISTOR	2.2k 1/16W
R246	NRSA63J-561X	M.G.RESISTOR	560 1/16W
R247	NRSA63J-392X	M.G.RESISTOR	3.9k 1/16W
R248	NRSA63J-391X	M.G.RESISTOR	390 1/16W
R249	NRSA63J-222X	M.G.RESISTOR	2.2k 1/16W
R250	NRSA63J-561X	M.G.RESISTOR	560 1/16W
R251	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R252	NRSA63J-101X	M.G.RESISTOR	100 1/16W
R253	NRSA63J-105X	M.G.RESISTOR	1M 1/16W
R254	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W (U)
R256	NRSA63J-105X	M.G.RESISTOR	1M 1/16W
R258	NRSA63J-102X	M.G.RESISTOR	1k 1/16W
R259	NRSA63J-102X	M.G.RESISTOR	1k 1/16W
R260	NRSA63J-822X	M.G.RESISTOR	8.2k 1/16W
R261	NRSA63J-102X	M.G.RESISTOR	1k 1/16W
R262	NRSA63J-222X	M.G.RESISTOR	2.2k 1/16W
R264	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R265	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R266	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R269	NRSA63J-472X	M.G.RESISTOR	4.7k 1/16W
R270	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R271	NRSA63J-102X	M.G.RESISTOR	1k 1/16W
R272	NRVA63D-152X	C.M.F.RESISTOR	1.5k 1/16W
R273	NRVA63D-272X	C.M.F.RESISTOR	2.7k 1/16W
R274	NRVA63D-153X	C.M.F.RESISTOR	15k 1/16W
R275	NRSA63J-103X	M.G.RESISTOR	10k 1/16W
R276	NRSA63J-333X	M.G.RESISTOR	33k 1/16W
R277	NRSA63J-104X	M.G.RESISTOR	100k 1/16W
R278	NRSA63J-105X	M.G.RESISTOR	1M 1/16W
R279	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R280	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R281	NRSA63J-104X	M.G.RESISTOR	100k 1/16W
R283	NRSA63J-104X	M.G.RESISTOR	100k 1/16W
R284	NRSA63J-105X	M.G.RESISTOR	1M 1/16W
R285	NRSA63J-221X	M.G.RESISTOR	220 1/16W
R286	NRSA63J-104X	M.G.RESISTOR	100k 1/16W
R287	NRSA63J-220X	M.G.RESISTOR	22 1/16W
R288	NRSA63J-220X	M.G.RESISTOR	22 1/16W
R289	NRSA63J-220X	M.G.RESISTOR	22 1/16W
R290	NRSA63J-220X	M.G.RESISTOR	22 1/16W
R291	NRSA63J-220X	M.G.RESISTOR	22 1/16W
R292	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R293	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R294	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R295	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R296	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W

Symbol No.	Part No.	Part Name	Description	
R297	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R298	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R299	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R300	NRSA63J-222X	M.G.RESISTOR	2.2k	1/16W
R301	NRSA63J-101X	M.G.RESISTOR	100	1/16W
R302	NRSA63J-101X	M.G.RESISTOR	100	1/16W
R303	NRSA63J-682X	M.G.RESISTOR	6.8k	1/16W
R304	NRSA63J-101X	M.G.RESISTOR	100	1/16W
R305	NRSA63J-101X	M.G.RESISTOR	100	1/16W
R306	NRSA63J-101X	M.G.RESISTOR	100	1/16W
R307	NRSA63J-223X	M.G.RESISTOR	22k	1/16W
R308	NRSA63J-822X	M.G.RESISTOR	8.2k	1/16W
R309	NRSA63J-682X	M.G.RESISTOR	6.8k	1/16W
R310	NRSA63J-122X	M.G.RESISTOR	1.2k	1/16W
R311	NRSA63J-393X	M.G.RESISTOR	39k	1/16W
R312	NRSA63J-102X	M.G.RESISTOR	1k	1/16W
R313	NRSA63J-223X	M.G.RESISTOR	22k	1/16W
R314	NRSA63J-822X	M.G.RESISTOR	8.2k	1/16W
R315	NRSA63J-682X	M.G.RESISTOR	6.8k	1/16W
R316	NRSA63J-122X	M.G.RESISTOR	1.2k	1/16W
R317	NRSA63J-392X	M.G.RESISTOR	3.9k	1/16W
R318	NRSA63J-333X	M.G.RESISTOR	33k	1/16W
R320	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R321	NRSA63J-223X	M.G.RESISTOR	22k	1/16W
R322	NRSA63J-102X	M.G.RESISTOR	1k	1/16W
R323	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R324	NRSA63J-101X	M.G.RESISTOR	100	1/16W
R325	NRSA63J-222X	M.G.RESISTOR	2.2k	1/16W
R326	NRSA63J-473X	M.G.RESISTOR	47k	1/16W
R327	NRSA63J-473X	M.G.RESISTOR	47k	1/16W
R328	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W(E)
R329	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R333	NRSA63J-473X	M.G.RESISTOR	47k	1/16W(U)
R335	NRSA63J-473X	M.G.RESISTOR	47k	1/16W
R336	NRSA63J-473X	M.G.RESISTOR	47k	1/16W
R337	NRSA63J-473X	M.G.RESISTOR	47k	1/16W
R338	NRSA63J-473X	M.G.RESISTOR	47k	1/16W
R339	NRSA63J-473X	M.G.RESISTOR	47k	1/16W
R340	NRSA63J-473X	M.G.RESISTOR	47k	1/16W
R341	NRSA63J-473X	M.G.RESISTOR	47k	1/16W
R342	NRSA63J-473X	M.G.RESISTOR	47k	1/16W
R343	NRSA63J-473X	M.G.RESISTOR	47k	1/16W
R344	NRSA63J-473X	M.G.RESISTOR	47k	1/16W
R345	NRSA63J-473X	M.G.RESISTOR	47k	1/16W
R346	NRSA63J-473X	M.G.RESISTOR	47k	1/16W
R347	NRSA63J-473X	M.G.RESISTOR	47k	1/16W
R348	NRSA63J-473X	M.G.RESISTOR	47k	1/16W
R349	NRSA63J-273X	M.G.RESISTOR	27k	1/16W
R350	NRSA63J-153X	M.G.RESISTOR	15k	1/16W
R351	NRSA63J-272X	M.G.RESISTOR	2.7k	1/16W
R352	NRSA63J-472X	M.G.RESISTOR	4.7k	1/16W
R353	NRSA63J-272X	M.G.RESISTOR	2.7k	1/16W
R354	NRSA63J-472X	M.G.RESISTOR	4.7k	1/16W
R355	NRSA63J-473X	M.G.RESISTOR	47k	1/16W
R356	NRSA63J-473X	M.G.RESISTOR	47k	1/16W
R357	NRSA63J-105X	M.G.RESISTOR	1M	1/16W
R358	NRSA63J-153X	M.G.RESISTOR	15k	1/16W
R359	NRSA63J-273X	M.G.RESISTOR	27k	1/16W
R360	NRSA63J-153X	M.G.RESISTOR	15k	1/16W

Symbol No.	Part No.	Part Name	Description	
R361	NRSA63J-273X	M.G.RESISTOR	27k	1/16W
R362	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R363	NRSA63J-153X	M.G.RESISTOR	15k	1/16W
R364	NRSA63J-153X	M.G.RESISTOR	15k	1/16W
R365	NRSA63J-153X	M.G.RESISTOR	15k	1/16W
R366	NRSA63J-273X	M.G.RESISTOR	27k	1/16W
R367	NRSA63J-273X	M.G.RESISTOR	27k	1/16W
R368	NRSA63J-273X	M.G.RESISTOR	27k	1/16W
R377	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R378	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R386	NRSA63J-562X	M.G.RESISTOR	5.6k	1/16W
C200	NEH90JM-336X	E.CAPACITOR	33	6.3V
C201	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C202	NEH90JM-336X	E.CAPACITOR	33	6.3V
C203	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C204	NEH90JM-336X	E.CAPACITOR	33	6.3V
C205	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C206	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C207	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C208	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C209	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C210	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C211	NEH90JM-336X	E.CAPACITOR	33	6.3V
C212	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C213	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C214	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C215	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C216	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C217	NEH90JM-336X	E.CAPACITOR	33	6.3V
C218	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C219	NEH90JM-336X	E.CAPACITOR	33	6.3V
C220	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C221	NEH90JM-336X	E.CAPACITOR	33	6.3V
C222	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C223	NDC31HJ-470X	CER.CAPACITOR	47P	50V
C224	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C225	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C226	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C227	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C228	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C229	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C230	NEH90JM-107X	E.CAPACITOR	100	6.3V
C231	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C232	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C233	NEH91CM-106X	E.CAPACITOR	10	16V
C234	NEH90JM-336X	E.CAPACITOR	33	6.3V
C235	NEH91CM-106X	E.CAPACITOR	10	16V
C236	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C237	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C239	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C240	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C241	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C242	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C243	NBE20JM-475X	TAN.CAPACITOR	4.7	6.3V
C244	NCF31CZ-103X	CER.CAPACITOR	0.01	16V(U)
	NCF31CZ-104X	CER.CAPACITOR	0.1	16V(E)
C249	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C250	NEH91AM-336X	E.CAPACITOR	33	10V

Symbol No.	Part No.	Part Name	Description
C251	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C252	NEH90JM-336X	E.CAPACITOR	33 6.3V
C253	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C254	NBE41AM-226X	TAN.CAPACITOR	22 10V
C255	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C256	NBE20JM-475X	TAN.CAPACITOR	4.7 6.3V
C257	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C259	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C260	NEH90JM-336X	E.CAPACITOR	33 6.3V
C261	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C262	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C263	NDC31HJ-221X	CER.CAPACITOR	220P 50V
C264	NDC31HJ-3R0X	CER.CAPACITOR	3P 50V
C265	NDC31HJ-3R0X	CER.CAPACITOR	3P 50V
C266	NCB31HK-103X	CER.CAPACITOR	0.01 50V
C267	NDC31HJ-101X	CER.CAPACITOR	100P 50V
C268	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C269	NEH90JM-336X	E.CAPACITOR	33 6.3V
C270	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C271	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C272	NDC31HJ-330X	CER.CAPACITOR	33P 50V
C274	NDC31HJ-180X	CER.CAPACITOR	18P 50V (U)
	NDC31HJ-220X	CER.CAPACITOR	22P 50V (E)
C276	NCB31HK-103X	CER.CAPACITOR	0.01 50V
C277	NDC31HJ-470X	CER.CAPACITOR	47P 50V
C278	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C279	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C280	NEH91AM-336X	E.CAPACITOR	33 10V
C281	NBE41AM-226X	TAN.CAPACITOR	22 10V
C282	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C283	NBE41AM-226X	TAN.CAPACITOR	22 10V
C284	NDC31HJ-560X	CER.CAPACITOR	56P 50V
C285	NDC31HJ-560X	CER.CAPACITOR	56P 50V
C286	NDC31HJ-100X	CER.CAPACITOR	10P 50V
C287	NDC31HJ-100X	CER.CAPACITOR	10P 50V
C288	NDC31HJ-100X	CER.CAPACITOR	10P 50V
C296	NCB31HK-103X	CER.CAPACITOR	0.01 50V (U)
	NCB31HK-472X	CER.CAPACITOR	0.0047 50V (E)
C300	NEH90JM-336X	E.CAPACITOR	33 6.3V
C301	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C302	NDC31HJ-220X	CER.CAPACITOR	22P 50V
C303	NCD31HJ-100X	CER.CAPACITOR	10P 50V
C304	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C306	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C307	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C310	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C311	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C314	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C316	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C317	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C318	NBE51AM-476X	TAN.CAPACITOR	47 10V
C319	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C320	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C321	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C322	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C323	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C326	NBE41AM-226X	TAN.CAPACITOR	22 10V
C327	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C328	NCF31CZ-104X	CER.CAPACITOR	0.1 16V

Symbol No.	Part No.	Part Name	Description
C329	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C330	NDC31HJ-560X	CER.CAPACITOR	56P 50V
C331	NCB31HK-103X	CER.CAPACITOR	0.01 50V
L200	NQL024J-220X	COIL	22μH
L201	NQL024J-220X	COIL	22μH
L203	NQL024J-220X	COIL	22μH
L204	NQL024J-220X	COIL	22μH
L205	NQL024J-220X	COIL	22μH
L206	NQL024J-220X	COIL	22μH
L207	NQL024J-220X	COIL	22μH
L208	NQL024J-220X	COIL	22μH
L209	NQL054J-3R3X	COIL	3.3μH
L300	NQL024J-220X	COIL	22μH
X200	SCV2219-001W	CRYSTAL	14.31818MHz (U)
	CE42275-001Y	CRYSTAL	17.734475MHz (E)
X300	SCV2813-001X	CRYSTAL	24.57MHz
CN1	SSV1983-030W	CONNECTOR	30PIN
CN2	SSV1983-030W	CONNECTOR	30PIN
CN3	SSV1983-024W	CONNECTOR	24PIN
CN4	SCV1770-004	CONNECTOR	4PIN
TP200	SCV1880-001	TEST POINT	
TP201	SSV1096-001	TEST POINT	
TP202	SSV1096-001	TEST POINT	
TP203	SCV1880-001	TEST POINT	
TP205	SCV1880-001	TEST POINT	
TP207	SCV1880-001	TEST POINT	
TP208	SSV1096-001	TEST POINT	
TP209	SSV1096-001	TEST POINT	
TP210	SSV1096-001	TEST POINT	
TP211	SCV1880-001	TEST POINT	
TB200	PGZ02228	EARTH LUG	
	M28F512-12C1	I.C.	(U)
	PLSC1163	PROGRAM LIST	(U)

5.3 GEN BOARD ASSEMBLY LIST 03

SCK2474-02-A0A (U)
SCK2474-02-C0A (E)

03☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
IC401	M62352GP-W	I.C.(M)	MITSUBISHI
IC402	TC4W53F-X	I.C.(M)	TOSHIBA
IC411	MM1031XM-X	I.C.(M)	MITSUMI
IC412	CXA1211M-X	I.C.(M)	SONY
IC413	TC4W53F-X	I.C.(M)	TOSHIBA
IC415	MM1024AF-W	I.C.(M)	MITSUMI
IC441	UPC358G2-W	I.C.(M)	NEC
IC471	AN8085M-X	I.C.(M)	MATSUSHITA
IC472	TK11650U-X	I.C.(M)	TOKO
IC481	UPC358G2-W	I.C.(M)	NEC
IC482	TC4S71F-X	I.C.(M)	TOSHIBA
IC483	MC14053BF-X	I.C.(M)	MOTOROLA
IC484	UPC4558G2-W	I.C.(M)	NEC
IC501	TC74HC4052AF-X	I.C.(M)	TOSHIBA
IC503	AD817AR-X	I.C.(M)	ANALOG DEVICES
IC504	TC7S02F-X	I.C.(M)	TOSHIBA
IC505	NJM1496M-X	I.C.(M)	JRC
IC506	UPC358G2-W	I.C.(M)	NEC
IC508	UPC358G2-W	I.C.(M)	NEC
IC571	LM1881M-X	I.C.(M)	NATIONAL SEMICO
IC572	TC74HC32AF-W	I.C.(M)	TOSHIBA
IC573	UPD5556G-W	I.C.(M)	NEC
IC574	MC14046BF-X	I.C.(M)	MOTOROLA
IC611	UPD5556G-W	I.C.(M)	NEC
IC612	TC4S81F-X	I.C.(M)	TOSHIBA
IC613	TC4S30F-W	I.C.(M)	TOSHIBA
IC614	MC14046BF-X	I.C.(M)	MOTOROLA
Q401	DTC114EUA-X	TRANSISOR	ROHM
Q402	MSC3930/B/-X	TRANSISOR	MOTOROLA
Q403	MSD1819A/R/-X	TRANSISOR	MOTOROLA
Q404	2SA1532/BC/-X	TRANSISOR	MATSUSHITA
Q405	MSD1819A/R/-X	TRANSISOR	MOTOROLA
Q406	MSD1819A/R/-X	TRANSISOR	MOTOROLA
Q407	2SA1610	TRANSISOR	NEC
Q482	DTC114EUA-X	TRANSISOR	ROHM
Q501	MSC3930/B/-X	TRANSISOR	MOTOROLA
Q502	MSC3930/B/-X	TRANSISOR	MOTOROLA
Q503	MSC3930/B/-X	TRANSISOR	MOTOROLA
Q504	MSC3930/B/-X	TRANSISOR	MOTOROLA
Q505	2SA1532/BC/-X	TRANSISOR	MATSUSHITA
Q506	MSC3930/B/-X	TRANSISOR	MOTOROLA
Q507	MSC3930/B/-X	TRANSISOR	MOTOROLA
Q508	MSC3930/B/-X	TRANSISOR	MOTOROLA
Q511	2SA1532/BC/-X	TRANSISOR	MATSUSHITA
Q512	MSC3930/B/-X	TRANSISOR	MOTOROLA
Q514	XP6401-W	TRANSISOR	MATSUSHITA
Q515	DTC114EUA-X	TRANSISOR	ROHM
Q516	MSD1819A/R/-X	TRANSISOR	MOTOROLA (E)
Q517	MSD1819A/R/-X	TRANSISOR	MOTOROLA (E)
Q571	2SA1532/BC/-X	TRANSISOR	MATSUSHITA
Q572	MSC3930/B/-X	TRANSISOR	MOTOROLA
Q573	MSB1218A/R/-X	TRANSISOR	MOTOROLA
Q574	MSD1819A/R/-X	TRANSISOR	MOTOROLA
Q575	MSB1218A/R/-X	TRANSISOR	MOTOROLA
Q576	MSB1218A/R/-X	TRANSISOR	MOTOROLA
Q577	MSD1819A/R/-X	TRANSISOR	MOTOROLA
Q578	XP4601-W	TRANSISOR	MATSUSHITA
Q579	MSD1819A/R/-X	TRANSISOR	MOTOROLA

Symbol No.	Part No.	Part Name	Description
Q580	XP4601-W	TRANSISOR	MATSUSHITA
Q611	MSD1819A/R/-X	TRANSISOR	MOTOROLA
Q613	DTC114EUA-X	TRANSISOR	ROHM
Q614	XP4601-W	TRANSISOR	MATSUSHITA
Q615	DTC114EUA-X	TRANSISOR	ROHM
Q616	DTC114EUA-X	TRANSISOR	ROHM
D401	MA143A-X	DIODE	MATSUSHITA
D501	SVC341/L/-X	VARI.CAP.DIODE	SANYO
D502	MA143A-X	DIODE	MATSUSHITA
D503	MA143A-X	DIODE	MATSUSHITA
D505	MA143A-X	DIODE	MATSUSHITA
D571	MA142WK-X	DIODE	MATSUSHITA
D611	MA142WK-X	DIODE	MATSUSHITA
R401	NRSA63J-103X	M.G.RESISTOR	10k 1/16W
R402	NRSA63J-102X	M.G.RESISTOR	1k 1/16W
R403	NRSA63J-331X	M.G.RESISTOR	330 1/16W
R411	NRSA63J-470X	M.G.RESISTOR	47 1/16W
R412	NRSA63J-561X	M.G.RESISTOR	560 1/16W
R413	NRSA63J-222X	M.G.RESISTOR	2.2k 1/16W
R414	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R415	NRSA63J-561X	M.G.RESISTOR	560 1/16W
R416	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R419	NRSA63J-470X	M.G.RESISTOR	47 1/16W
R420	NRSA63J-223X	M.G.RESISTOR	22k 1/16W
R421	NRSA63J-183X	M.G.RESISTOR	18k 1/16W
R422	NRVA63D-102X	C.M.F.RESISTOR	1k 1/16W
R423	NRVA63D-821X	C.M.F.RESISTOR	820 1/16W
R424	NRSA63J-102X	M.G.RESISTOR	1k 1/16W
R425	NRVA63D-152X	C.M.F.RESISTOR	1.5k 1/16W(U)
	NRVA63D-102X	C.M.F.RESISTOR	1k 1/16W(E)
R426	NRSA63J-821X	M.G.RESISTOR	820 1/16W
R427	NRSA63J-561X	M.G.RESISTOR	560 1/16W
R428	NRSA63J-220X	M.G.RESISTOR	22 1/16W
R429	NRSA63J-103X	M.G.RESISTOR	10k 1/16W
R430	NRSA63J-103X	M.G.RESISTOR	10k 1/16W
R431	NRSA63J-103X	M.G.RESISTOR	10k 1/16W
R432	NRSA63J-102X	M.G.RESISTOR	1k 1/16W
R433	NRSA63J-153X	M.G.RESISTOR	15k 1/16W
R434	NRSA63J-333X	M.G.RESISTOR	33k 1/16W(U)
	NRSA63J-273X	M.G.RESISTOR	27k 1/16W(E)
R435	NRSA63J-220X	M.G.RESISTOR	22 1/16W
R436	NRSA63J-392X	M.G.RESISTOR	3.9k 1/16W
R437	NRSA63J-152X	M.G.RESISTOR	1.5k 1/16W
R438	NRSA63J-470X	M.G.RESISTOR	47 1/16W
R439	NRSA63J-100X	M.G.RESISTOR	10 1/16W
R440	NRSA63J-105X	M.G.RESISTOR	1M 1/16W
R441	NRSA63J-222X	M.G.RESISTOR	2.2k 1/16W
R442	NRSA63J-222X	M.G.RESISTOR	2.2k 1/16W
R443	NRSA63J-223X	M.G.RESISTOR	22k 1/16W
R444	NRSA63J-223X	M.G.RESISTOR	22k 1/16W
R445	NRSA63J-184X	M.G.RESISTOR	180k 1/16W
R446	NRSA63J-103X	M.G.RESISTOR	10k 1/16W
R447	NRSA63J-272X	M.G.RESISTOR	2.7k 1/16W
R448	NRSA63J-272X	M.G.RESISTOR	2.7k 1/16W
R449	NRSA63J-103X	M.G.RESISTOR	10k 1/16W
R450	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R451	NRSA63J-471X	M.G.RESISTOR	470 1/16W

Symbol No.	Part No.	Part Name	Description	
R452	NRSA63J-101X	M.G.RESISTOR	100	1/16W
R453	NRSA63J-472X	M.G.RESISTOR	4.7k	1/16W
R454	NRVA63D-104X	C.M.F.RESISTOR	100k	1/16W
R455	NRSA63J-563	M.G.RESISTOR	56k	1/16W
R456	NRVA63D-153X	C.M.F.RESISTOR	15k	1/16W(U)
	NRVA63D-223X	C.M.F.RESISTOR	22k	1/16W(E)
R457	NRVA63D-153X	C.M.F.RESISTOR	15k	1/16W
R466	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R471	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R472	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R473	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R474	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R475	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R476	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R477	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R478	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R479	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R480	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R481	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R482	NRSA63J-223X	M.G.RESISTOR	22k	1/16W
R483	NRSA63J-472X	M.G.RESISTOR	4.7k	1/16W
R484	NRSA63J-104X	M.G.RESISTOR	100k	1/16W
R487	NRSA63J-472X	M.G.RESISTOR	4.7k	1/16W
R488	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R489	NRSA63J-123X	M.G.RESISTOR	12k	1/16W
R490	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R491	NRSA63J-223X	M.G.RESISTOR	22k	1/16W
R492	NRSA63J-153X	M.G.RESISTOR	15k	1/16W
R493	NRSA63J-153X	M.G.RESISTOR	15k	1/16W
R494	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R495	NRSA63J-223X	M.G.RESISTOR	22k	1/16W
R496	NRSA63J-153X	M.G.RESISTOR	15k	1/16W
R497	NRSA63J-153X	M.G.RESISTOR	15k	1/16W
R501	NRSA63J-102X	M.G.RESISTOR	1k	1/16W
R502	NRSA63J-102X	M.G.RESISTOR	1k	1/16W
R503	NRSA63J-183X	M.G.RESISTOR	18k	1/16W
R504	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R505	NRSA63J-332X	M.G.RESISTOR	3.3k	1/16W
R506	NRSA63J-222X	M.G.RESISTOR	2.2k	1/16W
R507	NRSA63J-102X	M.G.RESISTOR	1k	1/16W
R508	NRSA63J-821X	M.G.RESISTOR	820	1/16W(U)
	NRSA63J-102X	M.G.RESISTOR	1k	1/16W(E)
R510	NRSA63J-222X	M.G.RESISTOR	2.2k	1/16W
R511	NRSA63J-152X	M.G.RESISTOR	1.5k	1/16W
R512	NRSA63J-102X	M.G.RESISTOR	1k	1/16W
R513	NRSA63J-472X	M.G.RESISTOR	4.7k	1/16W
R514	NRSA63J-472X	M.G.RESISTOR	4.7k	1/16W
R515	NRSA63J-821X	M.G.RESISTOR	820	1/16W(U)
	NRSA63J-102X	M.G.RESISTOR	1k	1/16W(E)
R517	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R518	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R519	NRSA63J-222X	M.G.RESISTOR	2.2k	1/16W
R520	NRSA63J-152X	M.G.RESISTOR	1.5k	1/16W
R521	NRSA63J-102X	M.G.RESISTOR	1k	1/16W
R522	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R523	NRSA63J-472X	M.G.RESISTOR	4.7k	1/16W
R524	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R525	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R526	NRSA63J-122X	M.G.RESISTOR	1.2k	1/16W
R527	NRSA63J-221X	M.G.RESISTOR	220	1/16W

Symbol No.	Part No.	Part Name	Description	
R528	NRSA63J-332X	M.G.RESISTOR	3.3k	1/16W
R529	NRSA63J-122X	M.G.RESISTOR	1.2k	1/16W
R530	NRSA63J-104X	M.G.RESISTOR	100k	1/16W
R531	NRSA63J-472X	M.G.RESISTOR	4.7k	1/16W
R532	NRSA63J-472X	M.G.RESISTOR	4.7k	1/16W
R533	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R534	NRSA63J-154X	M.G.RESISTOR	150k	1/16W
R535	NRSA63J-562X	M.G.RESISTOR	5.6k	1/16W
R536	NRSA63J-101X	M.G.RESISTOR	100	1/16W
R537	NRSA63J-471X	M.G.RESISTOR	470	1/16W
R538	NRSA63J-332X	M.G.RESISTOR	3.3k	1/16W
R542	NRSA63J-222X	M.G.RESISTOR	2.2k	1/16W
R543	NRSA63J-272X	M.G.RESISTOR	2.7k	1/16W
R544	NRSA63J-102X	M.G.RESISTOR	1k	1/16W
R545	NRSA63J-102X	M.G.RESISTOR	1k	1/16W
R546	NRSA63J-152X	M.G.RESISTOR	1.5k	1/16W
R547	NRSA63J-102X	M.G.RESISTOR	1k	1/16W
R548	NRSA63J-102X	M.G.RESISTOR	1k	1/16W
R549	NRSA63J-332X	M.G.RESISTOR	3.3k	1/16W
R550	NRSA63J-331X	M.G.RESISTOR	330	1/16W
R551	NRSA63J-331X	M.G.RESISTOR	330	1/16W
R552	NRSA63J-332X	M.G.RESISTOR	3.3k	1/16W
R553	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R554	NRSA63J-223X	M.G.RESISTOR	22k	1/16W
R555	NRSA63J-105X	M.G.RESISTOR	1M	1/16W
R556	NRSA63J-223X	M.G.RESISTOR	22k	1/16W(U)
	NRSA63J-473X	M.G.RESISTOR	47k	1/16W(E)
R557	NRSA63J-822X	M.G.RESISTOR	8.2k	1/16W(E)
R558	NRSA63J-123X	M.G.RESISTOR	12k	1/16W(E)
R559	NRSA63J-272X	M.G.RESISTOR	2.7k	1/16W(E)
R560	NRSA63J-331X	M.G.RESISTOR	330	1/16W(E)
R561	NRSA63J-473X	M.G.RESISTOR	47k	1/16W(E)
R562	NRSA63J-473X	M.G.RESISTOR	47k	1/16W(E)
R564	NRSA63J-222X	M.G.RESISTOR	2.2k	1/16W(E)
R565	NRSA63J-472X	M.G.RESISTOR	4.7k	1/16W(E)
R566	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R567	NRSA63J-472X	M.G.RESISTOR	4.7k	1/16W
R568	NRSA63J-223X	M.G.RESISTOR	22k	1/16W
R569	NRSA63J-123X	M.G.RESISTOR	12k	1/16W
R570	NRSA63J-104X	M.G.RESISTOR	100k	1/16W
R571	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R572	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R573	NRSA63J-562X	M.G.RESISTOR	5.6k	1/16W
R574	NRSA63J-102X	M.G.RESISTOR	1k	1/16W
R575	NRSA63J-472X	M.G.RESISTOR	4.7k	1/16W
R580	NRSA63J-104X	M.G.RESISTOR	100k	1/16W
R581	NRSA63J-684X	M.G.RESISTOR	680k	1/16W
R582	NRSA63J-183X	M.G.RESISTOR	18k	1/16W
R583	NRSA63J-333X	M.G.RESISTOR	33k	1/16W
R584	NRSA63J-273X	M.G.RESISTOR	27k	1/16W
R585	NRSA63J-563X	M.G.RESISTOR	56k	1/16W
R586	NRVA63D-334X	C.M.F.RESISTOR	330k	1/16W
R587	NRSA63J-222X	M.G.RESISTOR	2.2k	1/16W
R588	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R589	NRSA63J-473X	M.G.RESISTOR	47k	1/16W
R590	NRSA63J-223X	M.G.RESISTOR	22k	1/16W
R591	NRSA63J-563X	M.G.RESISTOR	56k	1/16W
R592	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R593	NRSA63J-102X	M.G.RESISTOR	1k	1/16W

Symbol No.	Part No.	Part Name	Description	
R594	NRVA63D-563X	C.M.F.RESISTOR	56k	1/16W
R595	NRSA63J-473X	M.G.RESISTOR	47k	1/16W
R596	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R597	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R598	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R599	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R600	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R601	NRSA63J-102X	M.G.RESISTOR	1k	1/16W
R602	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R603	NRSA63J-472X	M.G.RESISTOR	4.7k	1/16W
R604	NRSA63J-332X	M.G.RESISTOR	3.3k	1/16W(U)
	NRSA63J-103X	M.G.RESISTOR	10k	1/16W(E)
R605	NRSA63J-105X	M.G.RESISTOR	1M	1/16W
R606	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R611	NRSA63J-102X	M.G.RESISTOR	1k	1/16W
R612	NRSA63J-822X	M.G.RESISTOR	8.2k	1/16W
R613	NRSA63J-470X	M.G.RESISTOR	47	1/16W
R615	NRSA63J-683X	M.G.RESISTOR	68k	1/16W
R616	NRSA63J-124X	M.G.RESISTOR	120k	1/16W
R617	NRVA63D-104X	C.M.F.RESISTOR	100k	1/16W(U)
	NRVA63D-184X	C.M.F.RESISTOR	180k	1/16W(E)
R618	NRVA63D-334X	C.M.F.RESISTOR	330k	1/16W(U)
	NRVA63D-184X	C.M.F.RESISTOR	180k	1/16W(E)
R619	NRSA63J-392X	M.G.RESISTOR	3.9k	1/16W
R620	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R622	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R623	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R625	NRVA63D-154X	C.M.F.RESISTOR	150k	1/16W(U)
	NRVA63D-184X	C.M.F.RESISTOR	180k	1/16W(E)
R626	NRSA63J-472X	M.G.RESISTOR	4.7k	1/16W
R627	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R628	NRSA63J-153X	M.G.RESISTOR	15k	1/16W
R629	NRSA63J-183X	M.G.RESISTOR	18k	1/16W
R630	NRSA63J-822X	M.G.RESISTOR	8.2k	1/16W
R631	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R632	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R633	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R634	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R635	NRSA63J-333X	M.G.RESISTOR	33k	1/16W
R636	NRSA63J-105X	M.G.RESISTOR	1M	1/16W
R637	NRSA63J-333X	M.G.RESISTOR	33k	1/16W
R638	NRSA63J-822X	M.G.RESISTOR	8.2k	1/16W
R639	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R640	NRSA63J-682X	M.G.RESISTOR	6.8k	1/16W
R651	NRSA63J-562X	M.G.RESISTOR	5.6k	1/16W
R652	NRSA63J-562X	M.G.RESISTOR	5.6k	1/16W
R653	NRSA63J-182X	M.G.RESISTOR	1.8k	1/16W
R654	NRSA63J-562X	M.G.RESISTOR	5.6k	1/16W
R655	NRSA63J-182X	M.G.RESISTOR	1.8k	1/16W
R656	NRSA63J-473X	M.G.RESISTOR	47k	1/16W
R657	NRSA63J-471X	M.G.RESISTOR	470	1/16W
R658	NRSA63J-122X	M.G.RESISTOR	1.2k	1/16W
R659	NRSA63J-681X	M.G.RESISTOR	680	1/16W
R660	NRSA63J-562X	M.G.RESISTOR	5.6k	1/16W
R661	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R662	NRVA63D-683X	C.M.F.RESISTOR	68k	1/16W
R663	NRVA63D-683X	C.M.F.RESISTOR	68k	1/16W
R664	NRVA63D-473X	C.M.F.RESISTOR	47k	1/16W
R665	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W

Symbol No.	Part No.	Part Name	Description	
R666	NRVA63D-154X	C.M.F.RESISTOR	150k	1/16W(U)
	NRVA63D-124X	C.M.F.RESISTOR	120k	1/16W(E)
R667	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R668	NRSA63J-103X	M.G.RESISTOR	10k	1/16W
R670	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R671	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R672	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R673	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R674	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R675	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R676	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R677	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
C401	NBE21AM-106X	TAN.CAPACITOR	10	10V
C402	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C403	NBE21AM-106X	TAN.CAPACITOR	10	10V
C404	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C405	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C406	NEH91CM-476X	E.CAPACITOR	47	16V
C411	NEH90JM-336X	E.CAPACITOR	33	6.3V
C412	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C413	NEH91HM-105X	E.CAPACITOR	1	50V
C414	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C415	NDC31HJ-820X	CER.CAPACITOR	82P	50V
C416	NEH90JM-226X	E.CAPACITOR	22	6.3V
C417	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C418	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C419	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C421	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C422	NDC31HJ-100X	CER.CAPACITOR	10P	50V
C423	NDC31HJ-560X	CER.CAPACITOR	56P	50V
C424	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C427	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C428	NEH91HM-225X	E.CAPACITOR	2.2	50V
C429	NEH90JM-336X	E.CAPACITOR	33	6.3V
C430	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C431	NEH91CM-106X	E.CAPACITOR	10	16V
C432	NEH90JM-107X	E.CAPACITOR	100	6.3V
C433	NEH90JM-107X	E.CAPACITOR	100	6.3V
C434	NEH91CM-106X	E.CAPACITOR	10	16V
C435	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C441	NEH91AM-336X	E.CAPACITOR	33	10V
C442	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C443	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C444	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C445	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C446	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C447	NDC31HJ-470X	CER.CAPACITOR	47P	50V
C448	NDC31HJ-470X	CER.CAPACITOR	47P	50V
C449	NDC31HJ-470X	CER.CAPACITOR	47P	50V
C450	NDC31HJ-470X	CER.CAPACITOR	47P	50V
C461	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C471	NEH91CM-106X	E.CAPACITOR	10	16V
C472	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C473	NBE41DM-106X	TAN.CAPACITOR	10	20V
C474	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C475	NEH90JM-336X	E.CAPACITOR	33	6.3V
C476	NCF31CZ-104X	CER.CAPACITOR	0.1	16V
C477	NBE21AM-106X	TAN.CAPACITOR	10	10V

Symbol No.	Part No.	Part Name	Description
C478	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C481	NEH91AM-336X	E.CAPACITOR	33 10V
C482	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C483	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C486	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C487	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C488	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C489	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C490	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C491	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C492	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C501	NEH90JM-336X	E.CAPACITOR	33 6.3V
C502	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C503	NDC31HJ-470X	CER.CAPACITOR	47P 50V
C504	NDC31HJ-220X	CER.CAPACITOR	22P 50V
C505	NDC31HJ-560X	CER.CAPACITOR	56P 50V (U)
	NDC31HJ-330X	CER.CAPACITOR	33P 50V (E)
C506	NDC31HJ-470X	CER.CAPACITOR	47P 50V
C507	NDC31HJ-560X	CER.CAPACITOR	56P 50V (U)
	NDC31HJ-330X	CER.CAPACITOR	33P 50V (E)
C508	NDC31HJ-470X	CER.CAPACITOR	47P 50V
C509	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C510	NDC31HJ-471X	CER.CAPACITOR	470P 50V
C512	NCB31HK-103X	CER.CAPACITOR	0.01 50V
C513	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C514	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C515	NDC31HJ-471X	CER.CAPACITOR	470P 50V
C516	NDC31HJ-101X	CER.CAPACITOR	100P 50V
C517	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C518	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C519	NDC31HJ-471X	CER.CAPACITOR	470P 50V
C520	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C521	NCB31HK-332X	CER.CAPACITOR	3300P 50V
C522	NEH91CM-106X	E.CAPACITOR	10 16V
C523	NEN21HM-105X	N.P.CAPACITOR	1 50V
C524	NCB31HK-332X	CER.CAPACITOR	3300P 50V (U)
	NCB31HK-102X	CER.CAPACITOR	1000P 50V (E)
C525	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C526	NCB31HK-682X	CER.CAPACITOR	6800P 50V (E)
C527	NCB31CK-473X	CER.CAPACITOR	0.047 16V (E)
C528	NCB31CK-273X	CER.CAPACITOR	0.027 16V (E)
C530	NEH91AM-336X	E.CAPACITOR	33 10V
C531	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C532	NCB31HK-103X	CER.CAPACITOR	0.01 50V
C533	NDC31HJ-471X	CER.CAPACITOR	470P 50V
C534	NDC31HJ-471X	CER.CAPACITOR	470P 50V
C535	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C536	NDC31HJ-471X	CER.CAPACITOR	470P 50V
C537	NDC31HJ-471X	CER.CAPACITOR	470P 50V
C538	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C539	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C540	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C571	NEH90JM-336X	E.CAPACITOR	33 6.3V
C572	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C573	NEH90JM-107X	E.CAPACITOR	100 6.3V
C574	NDC31HJ-101X	CER.CAPACITOR	100P 50V
C580	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C581	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C582	NDC31HJ-471X	CER.CAPACITOR	470P 50V

Symbol No.	Part No.	Part Name	Description
C583	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C584	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C585	NDC31HJ-331X	CER.CAPACITOR	330P 50V
C586	NDC31HJ-471X	CER.CAPACITOR	470P 50V
C587	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C588	NDC31HJ-271X	CER.CAPACITOR	270P 50V
C589	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C590	NEN21CM-475X	N.P.CAPACITOR	4.7 16V
C591	NCB11HK-104X	CER.CAPACITOR	0.1 50V
C592	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C593	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C594	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C611	NEH91AM-336X	E.CAPACITOR	33 10V
C612	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C613	NEH91CM-476X	E.CAPACITOR	47 16V
C614	NEH91CM-476X	E.CAPACITOR	47 16V
C615	NEH91CM-106X	E.CAPACITOR	10 16V
C616	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C617	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C618	NFV41CJ-104X	F CAP	0.1 16V
C619	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C620	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C621	NDC31HJ-471X	CER.CAPACITOR	470P 50V
C622	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C623	NFV41CJ-104X	F CAP	0.1 16V
C624	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C625	NEN21AM-106X	N.P.CAPACITOR	10 10V
C626	NEN21AM-106X	N.P.CAPACITOR	10 10V
C627	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C630	NCB31HK-103X	CER.CAPACITOR	0.01 50V
C631	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C632	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C633	NCB31HK-152X	CER.CAPACITOR	1500P 50V
C634	NCF31CZ-104X	CER.CAPACITOR	0.1 16V
C635	NDC21HJ-102X	CER.CAPACITOR	1000P 50V
C637	NDC31HJ-680X	CER.CAPACITOR	68P 50V
L442	NQL124K-150X	COIL	15μH
L502	NQL054K-220X	COIL	22μH
L572	NQL054K-220X	COIL	22μH
CN2	SSV1983-030W	CONNECTOR	30PIN
CN3	SSV1983-024W	CONNECTOR	24PIN
CN7	SSV1321-006	CONNECTOR	6PIN
CN8	SCV2477-020	CONNECTOR	20PIN
CN9	SCV2477-010	CONNECTOR	10PIN
FL411	SCV2806-001X	FL FILTER	
FL412	SCV2783-001X	FL FILTER	(U)
	SCV2784-001X	FL FILTER	(E)
FL413	SCV2807-001X	FL FILTER	

5.4 TERM BOARD ASSEMBLY LIST 04
SCK2485-01-B0A 04□□□□□□

Symbol No.	Part No.	Part Name	Description
Q800	MSD1819A/R/-X	TRANSISOR	MOTOROLA
Q801	2SA1532/BC/-X	TRANSISOR	MATSUSHITA
Q802	MSD1819A/R/-X	TRANSISOR	MOTOROLA
D800	MA147-W	DIODE	MATSUSHITA
D801	MA147-W	DIODE	MATSUSHITA
D802	MA147-W	DIODE	MATSUSHITA
D803	MA147-W	DIODE	MATSUSHITA
D804	SEL2310G	LED(GREEN)	SANKEN
SP804	SC43656-045	LED SPACER	for D804
D805	MA147-W	DIODE	MATSUSHITA
D806	MA147-W	DIODE	MATSUSHITA
D807	MA147-W	DIODE	MATSUSHITA
D808	MA147-W	DIODE	MATSUSHITA
D809	MA147-W	DIODE	MATSUSHITA
D810	MA147-W	DIODE	MATSUSHITA
R801	QRE141J-0R0	CAR.RESISTOR	0 1/4W
R802	QRE141J-0R0	CAR.RESISTOR	0 1/4W
R803	NRSA02J-103X	M.G.RESISTOR	10k 1/10W
R804	NRSA02J-153X	M.G.RESISTOR	15k 1/10W
R805	NRSA02J-472X	M.G.RESISTOR	4.7k 1/10W
R806	NRSA02J-682X	M.G.RESISTOR	6.8k 1/10W
R807	NRSA02J-152X	M.G.RESISTOR	1.5k 1/10W
R808	NRSA02J-821X	M.G.RESISTOR	820 1/10W
R809	NRSA02J-103X	M.G.RESISTOR	10k 1/10W
R810	NRSA02J-103X	M.G.RESISTOR	10k 1/10W
R811	NRSA02J-680X	M.G.RESISTOR	68 1/10W
R814	NRSA02J-750X	M.G.RESISTOR	75 1/10W
R816	NRSA02J-750X	M.G.RESISTOR	75 1/10W
R817	NRSA02J-750X	M.G.RESISTOR	75 1/10W
R818	NRSA02J-102X	M.G.RESISTOR	1k 1/10W
R819	NRSA02J-102X	M.G.RESISTOR	1k 1/10W
C800	NCF21HZ-104X	CER.CAPACITOR	0.1 50V
C803	NEF11CM-156RZ	E.CAPACITOR	15 16V
C808	NDC21HJ-470X	CER.CAPACITOR	47P 50V
C809	NCF21HZ-104X	CER.CAPACITOR	0.1 50V
LC800	SCV1804-222Z	LC FILTER	
LC801	SCV1804-222Z	LC FILTER	
S800	SCV2508-001Z	TACTIL PUSH SW	SET
S801	SCV2508-001Z	TACTIL PUSH SW	UP
S802	SCV2508-001Z	TACTIL PUSH SW	DOWN
S803	SCV2508-001Z	TACTIL PUSH SW	RIGHT
S804	SCV2508-001Z	TACTIL PUSH SW	LEFT
J800	SCV2472-001	TERMINAL	AC/DC INPUT
J801	SCV2762-001	BNC CONNECTOR	
J802	QMD8A04-001	CONNECTOR	Y/C OUT
J803	CEMT015-001	TERMINAL	VIDEO IRIS

Symbol No.	Part No.	Part Name	Description
CN8	SCV1766-020	CONNECTOR	20PIN
CN10	SCV1978-L02	CONNECTOR	2PIN
TP800	SCV1880-001	TEST POINT	
TP801	SCV1880-001	TEST POINT	
TP802	SCV1880-001	TEST POINT	
TP803	SCV1880-001	TEST POINT	
TP804	SCV1880-001	TEST POINT	
VA802	ERZCF2MK820	ZNR	
VA803	ERZCF2MK820	ZNR	

5.5 POWER(TK-C1380) BOARD ASSEMBLY LIST 05
SCK2471-02-A0A (U)
SCK2471-02-C0A (E) 05☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
IC700	TL1451CNS-X	I.C.(M)	TEXAS
IC701	NJM431U-X	I.C.(M)	JRC
IC702	MC33151DR2	I.C.(M)	MOTOROLA
IC703	NJM78L15UA-X	I.C.(M)	JRC
IC704	NJM79L09UA-X	I.C.(M)	JRC
Q700	2SC1318(R)-T	TRANSISOR	MATSUSHITA
HS1	SC46023-001	HEAT SINK	for Q700
SR1	SS47723-001	SCREW	for Q700
Q701	2SK2490	FET	
Q702	MSB1218A/R/-X	TRANSISOR	MOTOROLA
Q703	MSD1819A/R/-X	TRANSISOR	MOTOROLA
D700	D2L20U/4003/	DIODE	SINDENGEN
D701	D2L20U/4003/	DIODE	SINDENGEN
D702	D2L20U/4003/	DIODE	SINDENGEN
D703	D2L20U/4003/	DIODE	SINDENGEN
D704	RLZ5.6C-X	ZENNER DIODE	ROHM
D707	MA152WK-X	DIODE	MATSUSHITA
D708	ERA15-02-T1	DIODE	FUJI ELECTRIC
D710	MA739-X	DIODE	MATSUSHITA
D711	MA738-X	DIODE	MATSUSHITA
D712	1SS357-X	DIODE	TOSHIBA
D713	1SS357-X	DIODE	TOSHIBA
D714	1SS357-X	DIODE	TOSHIBA
D715	1SS357-X	DIODE	TOSHIBA
D716	1SS357-X	DIODE	TOSHIBA
D717	1SS357-X	DIODE	TOSHIBA
D718	1SS357-X	DIODE	TOSHIBA
D719	1SS357-X	DIODE	TOSHIBA
PC700	PS2701-1-X	PHOTO COUPLER	NEC
PC701	PS2701-1-X	PHOTO COUPLER	NEC
R700	NRSA02J-223X	M.G.RESISTOR	22k 1/10W
R701	NRSA02J-222X	M.G.RESISTOR	2.2k 1/10W
R702	QRS188J-6R8Y	M.G.RESISTOR	6.8 1/8W
R703	QRS188J-6R8Y	M.G.RESISTOR	6.8 1/8W
R705	NRVA02D-562X	C.M.F.RESISTOR	5.6k 1/10W
R706	NRSA02J-473X	M.G.RESISTOR	47k 1/10W
R707	NRSA02J-473X	M.G.RESISTOR	47k 1/10W
R708	NRSA02J-104X	M.G.RESISTOR	100k 1/10W
R709	NRSA02J-753NY	M.G.RESISTOR	75k 1/10W
R710	NRSA02J-473X	M.G.RESISTOR	47k 1/10W
R711	NRSA02J-102X	M.G.RESISTOR	1k 1/10W
R712	NRSA02J-272X	M.G.RESISTOR	2.7k 1/10W
R713	NRSA02J-272X	M.G.RESISTOR	2.7k 1/10W
R714	NRSA02J-220X	M.G.RESISTOR	22 1/10W
R715	NRSA02J-223X	M.G.RESISTOR	22k 1/10W
R716	NRSA02J-153X	M.G.RESISTOR	15k 1/10W
R717	NRVA02D-68R0AY	C.M.F.RESISTOR	68R 1/10W
R718	NRSA02J-332X	M.G.RESISTOR	3.3k 1/10W
R719	NRSA02J-102X	M.G.RESISTOR	1k 1/10W

Symbol No.	Part No.	Part Name	Description
R722	NRSA02J-102X	M.G.RESISTOR	1k 1/10W
R723	NRSA02J-101X	M.G.RESISTOR	100 1/10W
R724	NRSA02J-753NY	M.G.RESISTOR	75k 1/10W
R725	NRVA02D-152X	C.M.F.RESISTOR	1.5k 1/10W
R726	NRVA02D-122X	C.M.F.RESISTOR	1.2k 1/10W
R727	NRVA02D-183X	C.M.F.RESISTOR	18k 1/10W
R728	NRSA02J-683X	M.G.RESISTOR	68k 1/10W
R730	NRVA02D-123X	C.M.F.RESISTOR	12k 1/10W
R731	QRS188J-6R8Y	M.G.RESISTOR	6.8 1/8W
R732	NRVA02D-124X	C.M.F.RESISTOR	120k 1/10W
R733	NRSA02J-222X	M.G.RESISTOR	2.2k 1/10W
R734	NRSA02J-0R0X	M.G.RESISTOR	0 1/10W
C700	QFN32AK-473Z	M.F.CAPACITOR	0.047 100V
C701	QFN32AK-473Z	M.F.CAPACITOR	0.047 100V
C702	QEHC1JM-337Z	E.CAPACITOR	330 63V
C703	QEHC1JM-337Z	E.CAPACITOR	330 63V
C704	NCB21HK-472X	CER.CAPACITOR	4700P 50V
C705	NCB21HK-472X	CER.CAPACITOR	4700P 50V
C706	NBH21CM-474X	TAN.CAPACITOR	0.47 16V
C707	QEHC1HM-475Z	E.CAPACITOR	4.7 50V
C709	NCF21HZ-104X	CER.CAPACITOR	0.1 50V
C710	NDC21HJ-471X	CER.CAPACITOR	470P 50V
C711	QEHC1EM-107Z	E.CAPACITOR	100 25V
C712	NCF21HZ-104X	CER.CAPACITOR	0.1 50V
C713	NDC21HJ-221X	CER.CAPACITOR	220P 50V
C715	QEHC1HM-105Z	E.CAPACITOR	1 50V
C717	QCF32HP-472Z	CER.CAPACITOR	4700P 500V
C718	QEXA1CM-476	E.CAPACITOR	47 16V
C719	QEHC1EM-107Z	E.CAPACITOR	100 25V
C720	QEXC1AM-686Z	E.CAPACITOR	68 10V
C722	QEHC1AM-477Z	E.CAPACITOR	470 10V
C723	NCF21CZ-105X	CER.CAPACITOR	1 16V
C726	NDC21HJ-122X	CER.CAPACITOR	1200P 50V
C727	QEHC1EM-476Z	E.CAPACITOR	47 25V
C728	NCF21HZ-104X	CER.CAPACITOR	0.1 50V
C731	QEHC1HM-106Z	E.CAPACITOR	10 50V
C732	QEHC1EM-476Z	E.CAPACITOR	47 25V
C733	QEHC1HM-106Z	E.CAPACITOR	10 50V
C734	QEHC1EM-476Z	E.CAPACITOR	47 25V
C735	QEHC1HM-106Z	E.CAPACITOR	10 50V
C736	NCF21HZ-104X	CER.CAPACITOR	0.1 50V
C737	QEHC1HM-106Z	E.CAPACITOR	10 50V
C738	QEHC1EM-476Z	E.CAPACITOR	47 25V
C739	QEHC1HM-106Z	E.CAPACITOR	10 50V
C740	QEHC1EM-476Z	E.CAPACITOR	47 25V
C741	QEHC1CM-106Z	E.CAPACITOR	10 16V
C742	NCF21HZ-104X	CER.CAPACITOR	0.1 50V
C744	QFN32AK-473Z	M.F.CAPACITOR	0.047 100V
L700	SCV2314-220Z	COIL	22μH
L701	SCV2352-220	COIL	22μH
CN9	SCV2446-010	CONNECTOR	10PIN
CN10	SCV1978-S02	CONNECTOR	2PIN

5.6 POWER(TK-C1381) BOARD ASSEMBLY LIST 06
SCK2473-02-E0A 06□□□□□

Symbol No.	Part No.	Part Name	Description
FC700	CEMG001-001	FUSE CLIP	
FC701	CEMG001-001	FUSE CLIP	
LF700	SCV2748-001	AC LINE	
T700	SCV2735-001	SW.TRANS	

Symbol No.	Part No.	Part Name	Description
IC700	MA1040P(4100)	I.C.(M)	MAXIM
IC701	NJM431U-X	I.C.(M)	JRC
IC702	NJM78L15UA-X	I.C.(M)	JRC
IC703	NJM79L09UA-X	I.C.(M)	JRC
IC704	MC33151DR2	I.C.(M)	MOTOROLA
D700	S1WB/A/60	DIODE	SINDENGEN
D701	MA142WK-X	DIODE	MATSUSHITA
D702	GZA5.1Y-T2	ZENER DIODE	SANYO
D703	MA739-X	DIODE	MATSUSHITA
D704	MA738-X	DIODE	MATSUSHITA
D705	1SS357-X	DIODE	TOSHIBA
D706	1SS357-X	DIODE	TOSHIBA
D707	1SS357-X	DIODE	TOSHIBA
D708	1SS357-X	DIODE	TOSHIBA
D709	1SS357-X	DIODE	TOSHIBA
D710	1SS357-X	DIODE	TOSHIBA
D711	1SS357-X	DIODE	TOSHIBA
D712	1SS357-X	DIODE	TOSHIBA
D713	ERA15-06	DIODE	FUJI ELECTRIC
PC700	PC123FY2	PHOTO COUPLER	
PC701	PC123FY2	PHOTO COUPLER	
R700	QRG01DJ-104X	O.M.F.RESISTOR	100k 1W
R701	NRS181J-105X	M.G.RESISTOR	1M 1/8W
R702	NRSA02J-181X	M.G.RESISTOR	180 1/10W
R703	NRSA02J-122X	M.G.RESISTOR	1.2k 1/10W
R704	NRS12BJ-561NZ	M.G.RESISTOR	560 1/2W
R705	NRSA02J-102X	M.G.RESISTOR	1k 1/10W
R706	NRSA02J-101X	M.G.RESISTOR	100 1/10W
R708	NRVA02D-272X	C.M.F.RESISTOR	2.7k 1/10W
R709	NRVA02D-393X	C.M.F.RESISTOR	39k 1/10W
R710	NRVA02D-222X	C.M.F.RESISTOR	2.2k 1/10W
R711	QRG01DJ-683X	O.M.F.RESISTOR	68k 1W
R712	NRSA02J-102X	M.G.RESISTOR	1k 1/10W
R713	NRSA02J-683X	M.G.RESISTOR	68k 1/10W
R715	NRSA02J-122X	M.G.RESISTOR	1.2k 1/10W
R716	NRSA02J-181X	M.G.RESISTOR	180 1/10W
R717	NRVA02D-223X	C.M.F.RESISTOR	22k 1/10W
R718	NRSA02J-222X	M.G.RESISTOR	2.2k 1/10W
C700	QFZ9068-104	FILM CAPACITOR	0.1
C701	QEZ0228-476	E.CAPACITOR	47
C702	QFKA2JK-103	M.M.CAPACITOR	0.01 630V
C704	NCF21HZ-103X	CER.CAPACITOR	0.01 50V
C705	NCF21HZ-103X	CER.CAPACITOR	0.01 50V
C706	QEXA1CM-476	E.CAPACITOR	47 16V
C708	QEXC1AM-686Z	E.CAPACITOR	68 10V
C710	QCZ9045-222	CER.CAPACITOR	2200P
C711	QEHC1HM-105Z	E.CAPACITOR	1 50V
C713	NCF21HZ-104X	CER.CAPACITOR	0.1 50V
C715	NDC21HJ-122X	CER.CAPACITOR	1200P 50V
C716	QEHC1EM-476Z	E.CAPACITOR	47 25V
C717	NCF21HZ-104X	CER.CAPACITOR	0.1 50V
C720	QEHC1HM-106Z	E.CAPACITOR	10 50V
C721	QEHC1EM-476Z	E.CAPACITOR	47 25V
C722	QEHC1HM-106Z	E.CAPACITOR	10 50V

Symbol No.	Part No.	Part Name	Description
C723	QEHC1HM-476Z	E.CAPACITOR	47 50V
C725	NCF21HZ-104X	CER.CAPACITOR	0.1 50V
C726	QEHC1HM-106Z	E.CAPACITOR	10 50V
C727	QEHC1EM-476Z	E.CAPACITOR	47 25V
C728	QEHC1HM-106Z	E.CAPACITOR	10 50V
C729	QEHC1EM-476Z	E.CAPACITOR	47 25V
C731	NCF21HZ-104X	CER.CAPACITOR	0.1 50V
C732	QCZ9045-222	CER.CAPACITOR	2200P
C733	NCF21HZ-104X	CER.CAPACITOR	0.1 50V
L700	SCV2314-220Z	COIL	22μH
L701	SCV2352-220	COIL	22μH
LF700	SCV2770-001	FILTER	
CN9	SCV2446-010	CONNECTOR	10PIN
CN10	SCV1752-002	CONNECTOR	2PIN
T700	SCV2799-001	SWITCHING TRANS	
VA700	QAF0021-182	ZNR	
VA701	QAF0021-182	ZNR	
FC700	CEMG001-001	FUSE CLIP	
FC701	CEMG001-001	FUSE CLIP	

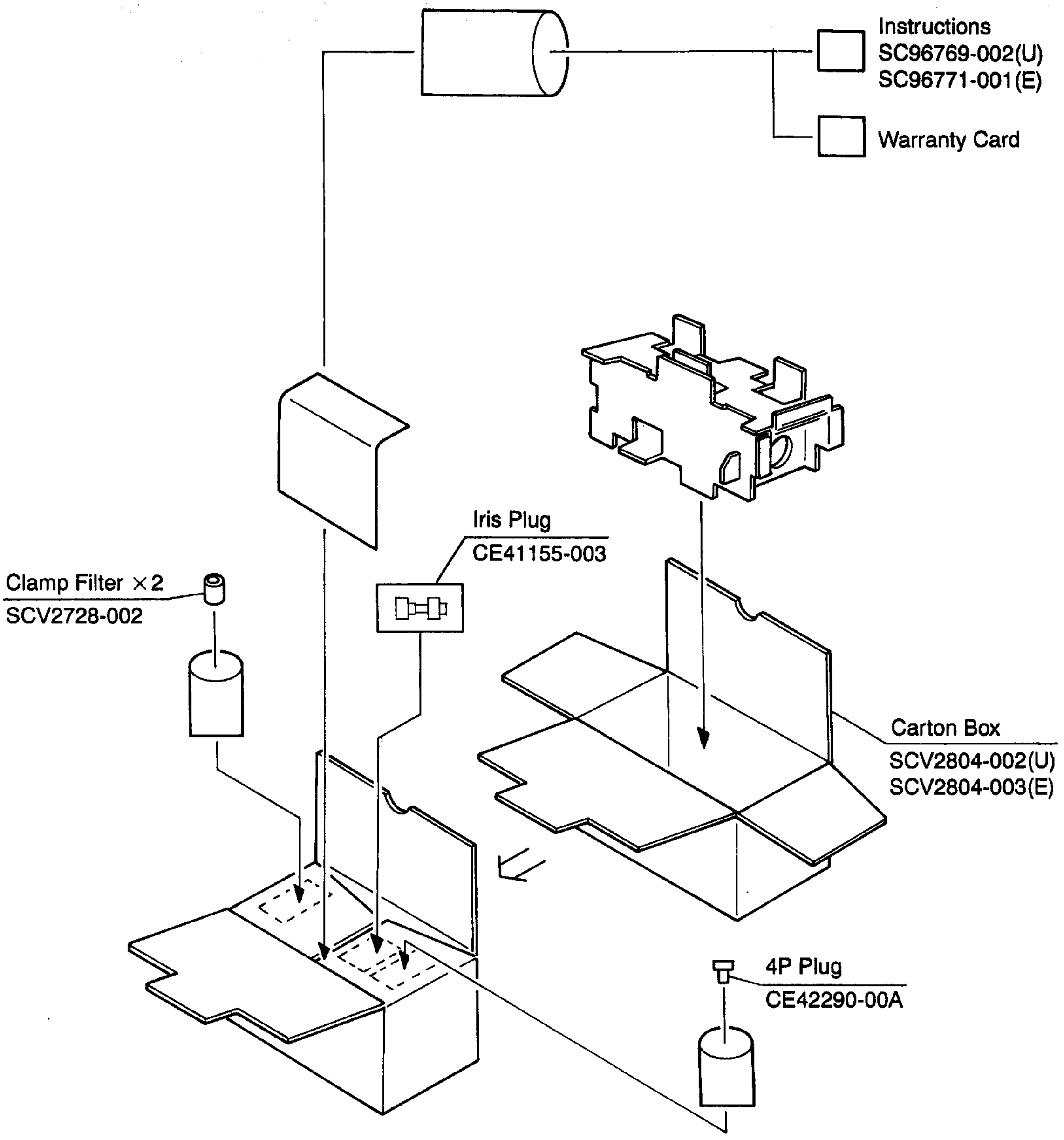
5.7 DC IRIS BOARD ASSEMBLY LIST 07

SCK2471-01-A0A 07☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
D680	MA147-W	DIODE	MATSUSHITA
D681	MA147-W	DIODE	MATSUSHITA
D682	MA147-W	DIODE	MATSUSHITA
D683	MA147-W	DIODE	MATSUSHITA
C681	NCF21HZ-104X	CER.CAPACITOR	0.1 50V
LC680	SCV2579-222Z	LC FILTER	
J680	SCV2101-001	CONNECTOR	DC IRIS
CN7	SCV2446-006	CONNECTOR	6PIN

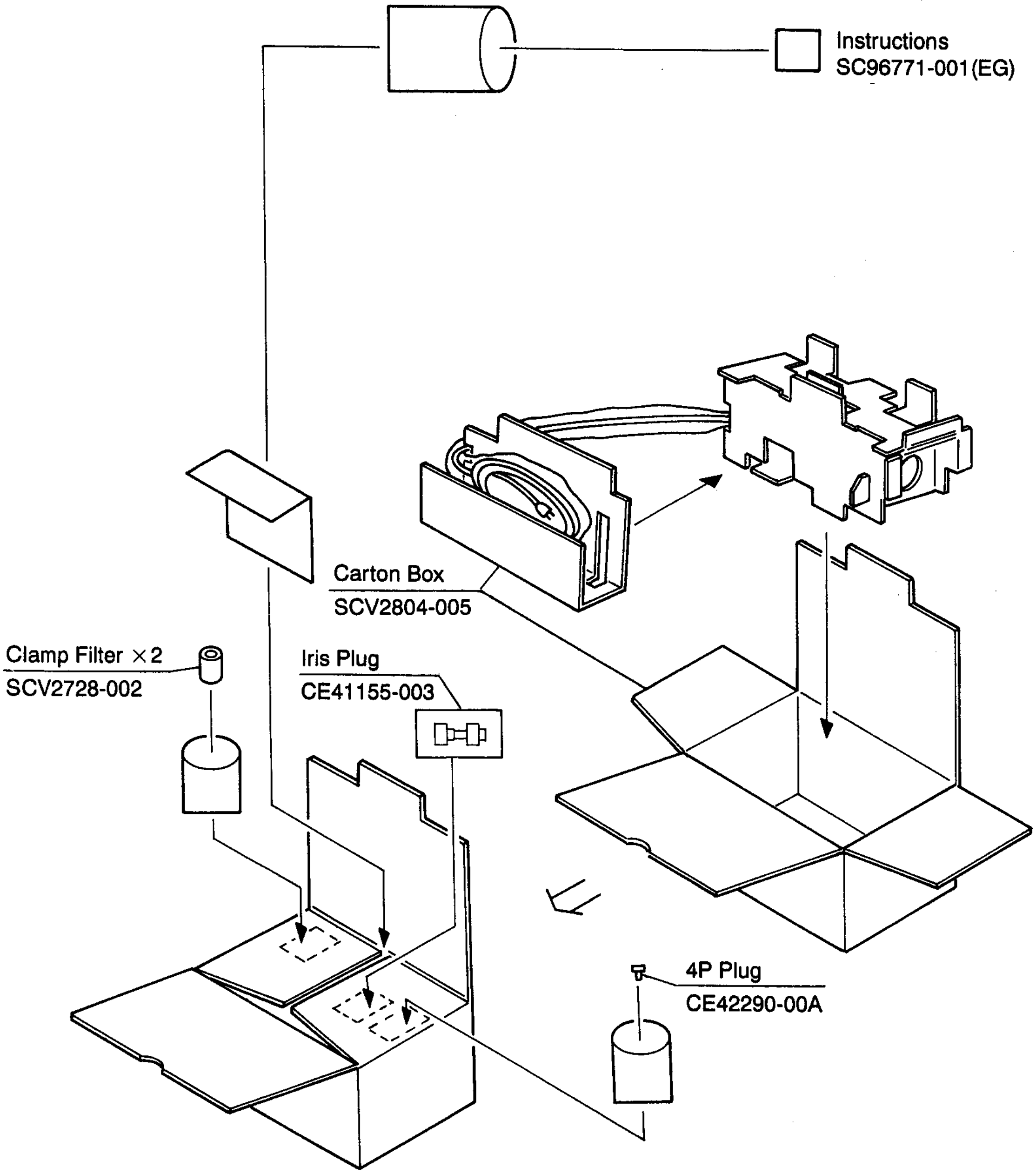
SECTION 6
REPACKING

6.1 PACKING ASSEMBLY [TK-C1380]


Instructions
SC96769-002(U)
SC96771-001(E)
Warranty Card
Iris Plug
CE41155-003
Clamp Filter ×2
SCV2728-002
Carton Box
SCV2804-002(U)
SCV2804-003(E)
4P Plug
CE42290-00A

Note: Accessories above are subject to change without notice.

6.2 PACKING ASSEMBLY [TK-C1381]


Instructions
SC96771-001(EG)
Carton Box
SCV2804-005
Clamp Filter ×2
SCV2728-002
Iris Plug
CE41155-003
4P Plug
CE42290-00A

Note: Accessories above are subject to change without notice.

SECTION 7
CIRCUIT SESCRIPEION

7.1 VIDEO SIGNAL FLOW

The video signal output from the CCD image sensor on the CCD Board are sent through the CCD Board, DSP Board and GEN Board for signal processing and amplification, then output from the TERM Board.

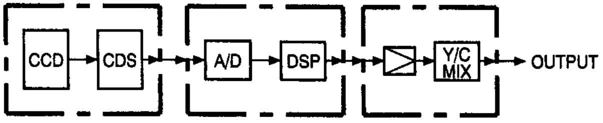


Fig. 7-1

7.1.1 CCD Board

IC100 is the CCD image sensor. Its output is sent to Q101 (buffer) for impedance reduction, and input into IC102 (CDS). Q101 is used to improve the CDS circuit drive capability as well as to reduce the signal impedance. IC102 includes the CDS (Correlative Double Sampling) circuit and AGC circuit. After the CDS signal processing, the video signal is amplified by the AGC circuit, supplied to the compressor circuit for compressing the highlight section and output from IC102.

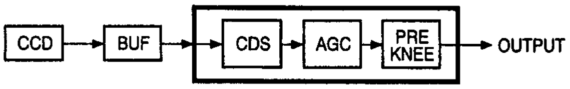
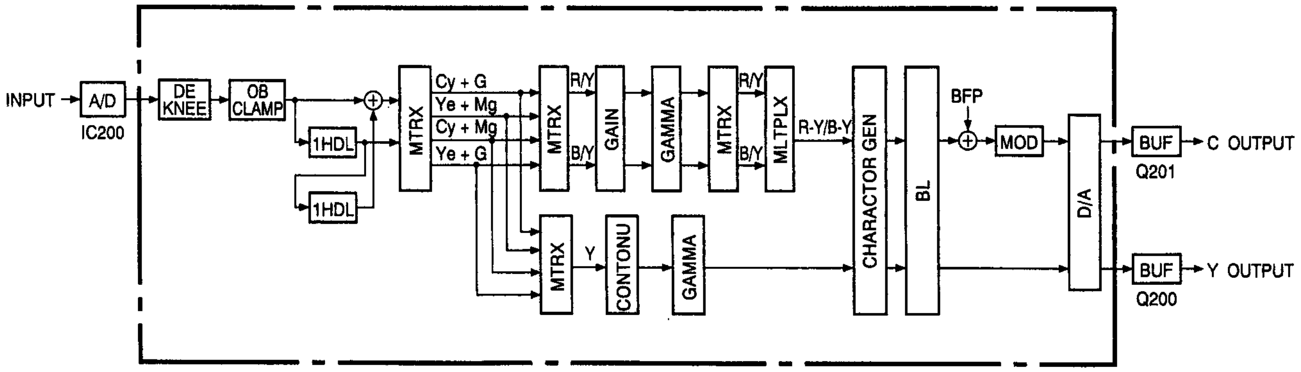


Fig. 7-2

7.1.2 DSP Board

The DSP Board is used to A/D-convert the video signal, apply digital video signal processing, D/A-convert the signal again and output it.

IC200 is the A/D converter IC which outputs the input video signal as a 9-bit digital signal. IC201 is the DSP. When a video signal is input to it, it returns the level of the compressed video signal to the original level with the expander circuit. In this stage, the video signal becomes a 11-bit signal. Next, the video signal is processed by the OB clamper circuit to fix its black level. Then the matrix circuit generates the (Cy+G), (Ye+Mg), (Cy+Mg) and (Ye+G) signals based on the video signal which passed through a delay line and the video signal which did not passed through it. With the chroma signal line, a matrix circuit generates the (R-Y) and (B-Y) signals, the gamma circuit applies gamma to the video signal, then another matrix circuit generates the (R-Y) and (B-Y) signals. As the video signal is compressed by the gamma circuit, it becomes an 8-bit signal after the gamma circuit. The video signal is then time-division multiplexed by the multiplexer circuit. The next, character generator circuit erases the color signal components of the sections where characters are superimposed, and the BL circuit applies blanking processing. Then the BF pulse is added to the signal which is modulated, and the modulated signal is D/A-converted before being output. On the other hand, with the luminance signal line, the Y signal is generated from the (Cy+G), (Ye+Mg), (Cy+Mg) and (Ye+G) signals and the CC circuit mixes the contour signal with the Y signal. Next, the gamma circuit applies gamma to the signal which becomes an 8-bit signal, and the character generator circuit mixes characters with it. The signal is then subjected to the blanking processing by the BL circuit and D/A converter before being output. Among the adjustment items, the DSP data can be varied by R GAIN and B GAIN. The clamp level, contour level, gamma point and blanking level are fixed data obtained from the CPU (IC305) and cannot be varied.



IC201

Fig. 7-3

7.1.3 GEN Board

The Y signal is amplified by 6 dB by IC411 then supplied to the LPF to remove the noise generated due to sampling in D/A conversion. The Y level is adjusted by the amplifier of IC412.1, the Y signal is mixed with sync, driven by buffer Q404 and input to IC415. The chroma signal is amplified by inverter amp Q402 and supplied to the BFP to become only the subcarrier component. The signal is then input to IC412.2 to amplify the burst and video signals with different gains, and input to IC415. IC415 is the Y/C mixer IC which outputs the Y, C and video signals. This IC incorporates a character mixer circuit and a circuit which utilizes the character mixer circuit to paint the video of the highlight section. This circuit applied the Y signal to a differential amp so that the signal is output when the video signal level is at a certain level or higher. The "certain" level can be selected from three levels. The signal with a higher level than this "certain" signal is input to the character black input terminal and chroma muting terminal to turn the Y level to the black level and mute the chroma signal in this period to perform the operation described above.

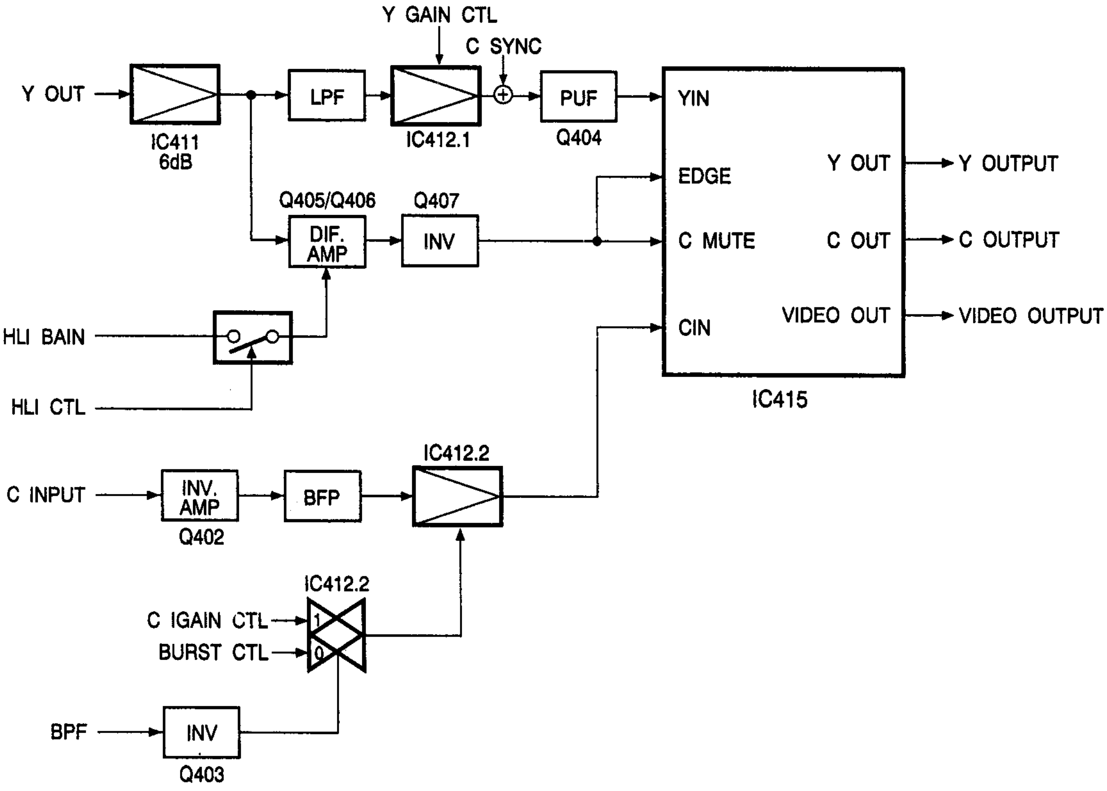

Y GAIN CTL
C SYNC
Y OUT
IC411
6dB
LPF
IC412.1
PUF
Q404
YIN
EDGE
Y OUT
Y OUTPUT
Q405/Q406
Q407
DIF. AMP
INV
C MUTE
C OUT
C OUTPUT
HLI BAIN
CIN
VIDEO OUT
VIDEO OUTPUT
HLI CTL
IC415
IC412.2
C INPUT
INV. AMP
Q402
BFP
IC412.2
C IGAIN CTL
1
BURST CTL
0
BPF
INV
Q403

Fig. 7-4

7.2 SYNC SIGNAL GENERATOR

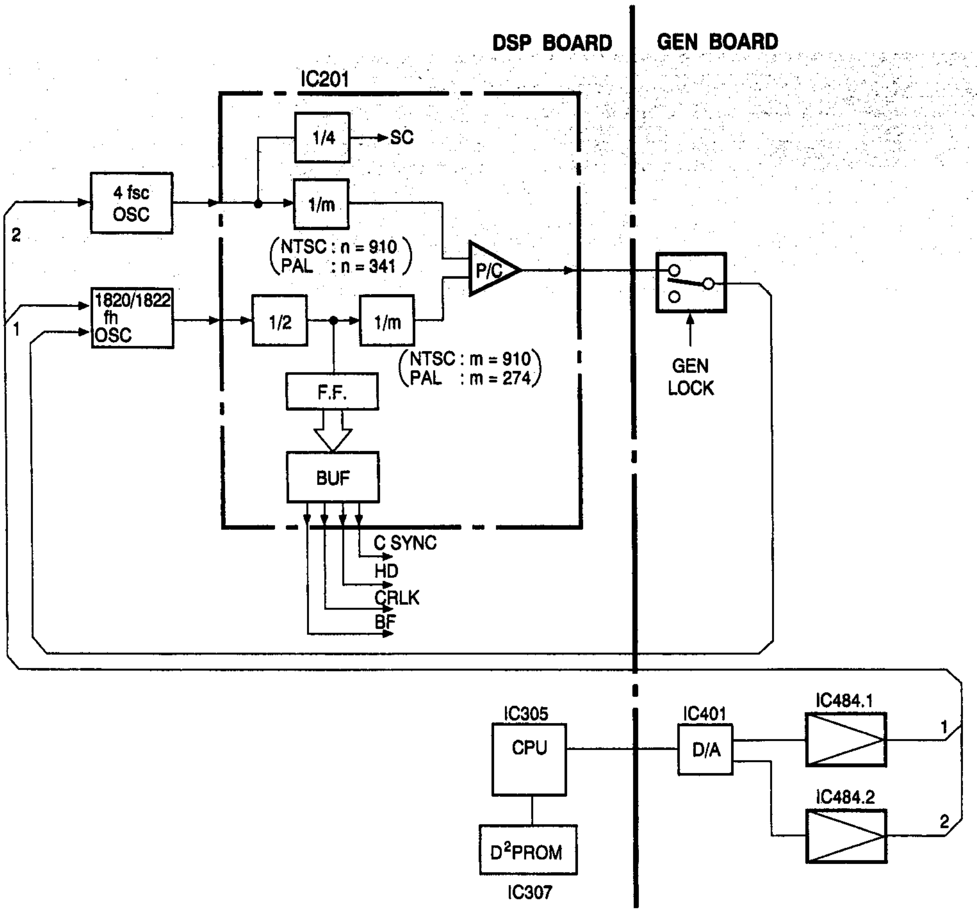

DSP BOARD
GEN BOARD
IC201
1/4
SC
4 fsc
OSC
1/m
2
(NTSC : n = 910
PAL : n = 341)
P/C
1820/1822
fh
OSC
1
1/2
1/m
(NTSC : m = 910
PAL : m = 274)
F.F.
BUF
GEN
LOCK
C SYNC
HD
CRLK
BF
IC305
CPU
IC401
D/A
IC484.1
1
IC484.2
2
D²PROM
IC307

Fig. 7-5

The sync signal generator is located in IC201 (DSP) on the DSP Board. IC307 (EEPROM) on the DSP Board stores the adjustment data for 4fsc and fh, which are read by IC305 (CPU). The data forms a digital signal together with other data and output to the GEN Board. IC401 on the GEN Board is a D/A converter. the 4fsc data of which is amplified by the amplifier of IC484.2 and controls the oscillation frequency of the 4fsc oscillator circuit. The fh data is amplified by the amplifier of IC484.1 and controls the oscillation frequency of the fh oscillator circuit. Each of the oscillated pulses from these circuits is divided inside IC201 (DSP) and their phases are compared. The result is fed back to the fh oscillator circuit to assure correlation between sc and fh.

7.3 TIMING GENERATOR

The timing generator is also located in IC201 (DSP) on the DSP Board. The frequency obtained using the LC oscillator with 1820 fh (with NTSC, 1824 fh with PAL) is halved inside IC201 and input into the flip-flop. This flip-flop generates the pulse required to drive the CCD image sensor, and the pulse is sent to the CCD Board by means of a buffer. The IC101 on the CCD Board is the V driver, which generates the 3-value pulse required to drive the CCD image sensor and outputs the pulse to the CCD image sensor. Q106 to Q109 form the buffer of the H drive pulse and are inserted aiming at improving the drive capability.

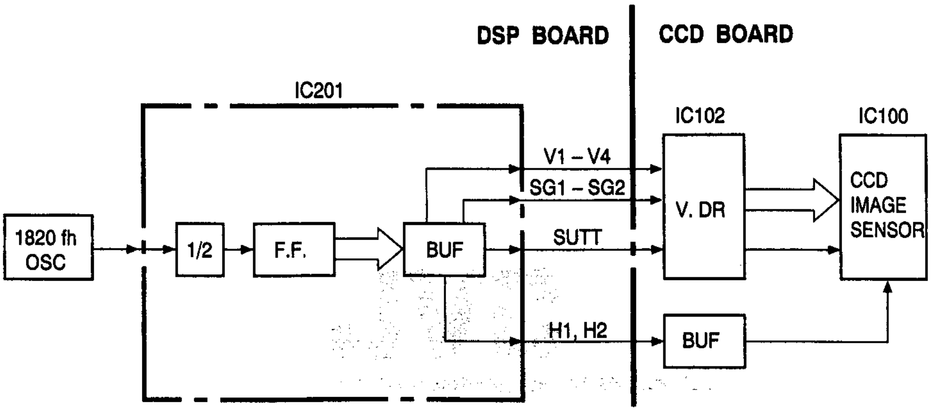

DSP BOARD
CCD BOARD
IC201
IC102
IC100
V1 – V4
SG1 – SG2
V. DR
CCD
IMAGE
SENSOR
1820 fh
OSC
1/2
F.F.
BUF
SUTT
H1, H2
BUF

Fig. 7-6

7.4 EXTERNAL SYNCHRONIZATION

The external synchronization of the unit is handled by the GEN Board. The synchronization is performed either using the EXT SYNC input or the line lock.

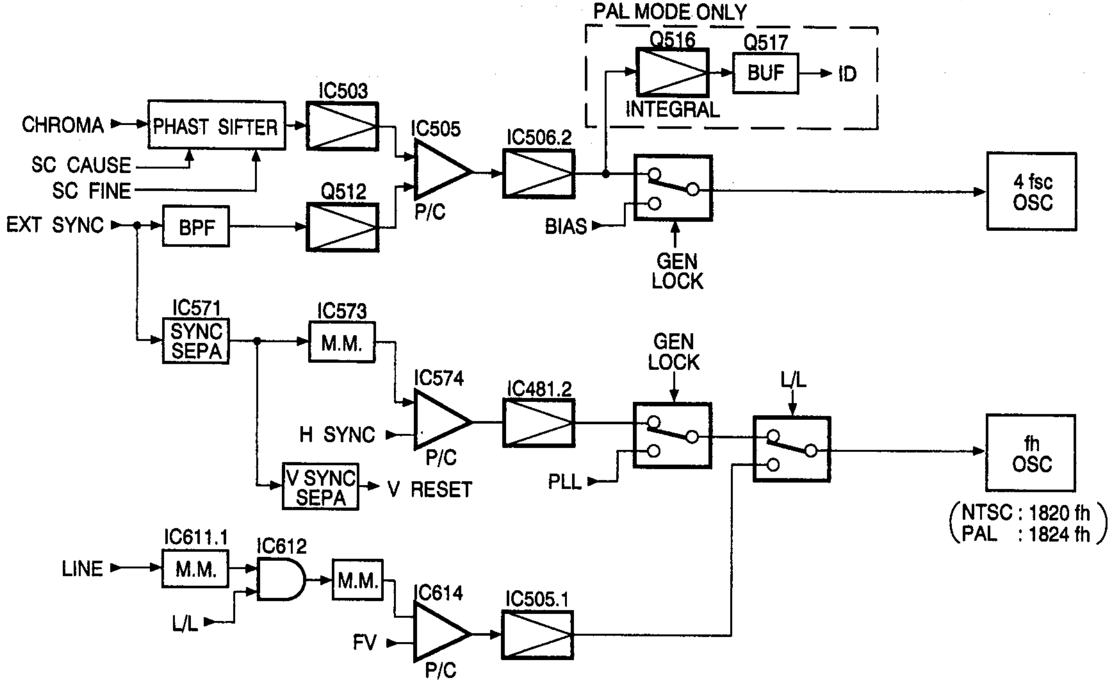

PAL MODE ONLY
Q516
Q517
BUF
ID
INTEGRAL
IC503
CHROMA
PHAST SIFTER
SC CAUSE
SC FINE
EXT SYNC
BPF
IC505
IC506.2
Q512
P/C
BIAS
GEN LOCK
4 fsc OSC
IC571
SYNC SEPA
IC573
M.M.
GEN LOCK
L/L
IC574
IC481.2
H SYNC
P/C
V SYNC SEPA
V RESET
PLL
fh OSC
(NTSC : 1820 fh
PAL : 1824 fh)
IC611.1
IC612
LINE
M.M.
M.M.
L/L
IC614
IC505.1
FV
P/C

Fig. 7-7

7.4.1 External synchronization when EXT SYNC is input

1. SC lock

The chroma signal is adjusted of phase by the phase shifter. Then, the phase in the burst signal period of the phase-adjusted chroma signal and that in the burst signal period of the signal obtained by eliminating the sc component from EXT SYNC are compared, and the result is fed back to the 4fsc oscillator circuit on the DSP Board to control the oscillation frequency. With the PAL mode, the result of the phase comparison is amplified by a differential amp and locking is applied when the phase is deviated by 180 degrees.

2. H lock

IC571 performs the sync separation of the EXT SYNC signal. The C SYNC output is supplied to the monostable multivibrator if IC537 to remove the equivalent pulse, and the phase is compared with that of the H SYNC signal from the SSG. The result of the phase comparison is used to control the fh oscillator circuit (NTSC: 1820fh, PAL: 1824fh) of the DSP Board.

7.4.2 Line lock

Line lock refers to synchronizing the V sync signal with the input AC power. The AC waveform of the input AC power is shaped by IC611.1 (monostable multivibrator) and the signal is delayed by IC611.2 (monostable multivibrator) by the same amount as the signal delay caused in the locked loop. Then the phase of this signal is compared with that of the FV signal from the SSG. The result is used to control the fh oscillator circuit (NTSC: 1829 fh, PAL: 1824 fh).